## DAV PS, Bhatgaon

Class – X Mathematics 1 Mark Question.

1. If p & q are two odd prime numbers such that p >q. then  $p^2 - q^2$  is..... a) an even number

b)an odd number

- d)a prime number c) an odd prime number
- 2. Find median of the data using an empirical relation when it is given that mode=12.4 & mean=10.5.
- 3. An equation of the circle with centre at(0,0) and radius r is.....
- 4. The L.C.M of x & 18 is 36, and the H.C.F of x & 18 is 2, then find the number of x.....
- 5. What is abscissa of the point of intersection of the "less than type" and of the "more than type" cumulative frequency curve of a grouped data?
- 6. The mean and median of data a,b and c are 50 and 35. Where a <b <c. if c-a=55, then find (b-a)
- 7. If the radii is diminished by 10%, then its area of the circle is diminished by .....%
- 8. Distance of point A(x,y) from origin is .....
- 9. The distance between two parallel tangents drawn is equal to the .....of the circle.
- 10. A and b are two positive integers such that the least prime factor of a is 3 and the least prime factor of b is 5. Then calculate the least prime factor of (a+b)?
- 11. Degree of reminder is always .....than degree of divisor.
- 12. If a regular hexagon is inscribed in a circle then its perimeter is.....
- 13. Numbers having non-terminating, non-repeating decimal expansion are known as.....
- 14. If the area of three adjacent faces of cuboid are x,y,z then find the volume of cuboid?
- 15. The linear factor of quadratric equation  $x^2 + kx + 1 = 0$  are.....

d) 2≤k≤-2 a) k≥2 b) k≤2 c) k≥-2

- 16. The ratio of sides of the triangle to be constructed with the corresponding sides of the given b)length factor triangle is called..... a)Scale factor c)side factor d)k-factor.
- 17. The value of x, for which the polynomial  $(x^2 1)$  and  $(x^2 2x + 1)$  vanish simultenously is.....
- 18. If  $x = p \sec \theta$  and  $y = q \tan \theta$ , then.....

a)  $x^2 - y^2 = p^2 q^2$  b)  $x^2 q^2 - y^2 p^2 = pq$  c)  $x^2 q^2 - y^2 p^2 = \frac{1}{p^2 q^2}$  d)  $x^2 q^2 - y^2 p^2 = p^2 q^2$ 

19. The value of the polynomial  $x^8 - x^5 + x^2 - x + 1$  is.....

b) negative for all real no c = 0 d) depends on the value of x. a) Positive for all real no.

- 20. The median of a set of 9 distinct observation is 20.5. if each of the largest 4 observation of the set is increased by 2, then the median of the new set will be.....
- 21. Each root of  $x^2 bx + c = 0$  is decreased by 2. The resulting equation is  $x^2 2x + 1 = 0$ , then.....
  - c)b=2, c=-1 d)b=-4, c=3 a) b=6,c=9 b) b=3,c=5
- 22. Triangle in which we study trigonometric ratios is called.....
- 23. The ratio of the length of a rod and its shadow is 1:  $\sqrt{3}$ , then the angle of elevation of sun is.....
- 24. 24. A three digit number is to be formed usingh 3,4,7,8 and 2 without repetation. The probability that it is odd no is...
  - $b)\frac{4}{5}$   $c)\frac{1}{5}$ a)<sup>3</sup> d)<sup>2</sup>.
- 25. In a frequency distribution , the mid value of class is 10 . and the width of class is 6. The lower limit of the class is.....
- 26. What is the perimeter of the sector with radius 10.5 cm and sector angle 60°?

27. If the perimeter of one face of a cube is 20cm, then its surface area is
28. Arrange the following in assending order $\frac{17}{18}$ , $\frac{43}{45}$ , $\frac{59}{60}$ and $\frac{31}{36}$ .
$a)\frac{17}{18} < \frac{59}{60} < \frac{43}{45} < \frac{36}{31} \qquad b)\frac{31}{36} < \frac{17}{18} < \frac{43}{45} < \frac{59}{60} \qquad c)\frac{43}{45} < \frac{59}{60} < \frac{31}{36} < \frac{17}{18} \qquad d)\frac{59}{60} < \frac{43}{45} < \frac{31}{36} < \frac{17}{18}$
29. If the perimeter of a semi-circle protector is 36cm, then its diameter is.
a) 7cm b)14cm c)12cm d)16cm 20 APC is an isosceles triangle with $AC=PC$ if $AC^2 = 2PC^2$ then triangle APC is right angle at
30. ABC is an isosceles triangle with AC=BC, if $AC^2 = 2BC^2$ , then triangle ABC is right angle at a) $\angle A$ b) $\angle B$ c) $\angle C$ D) None of these.
a) $\angle A$ b) $\angle B$ c) $\angle C$ D) None of these. 31. If $\sqrt{3} \tan \theta = 1$ then the value of $\sin^2 \theta - \cos^2 \theta$ is
a) $\frac{1}{3}$ b) $-\frac{1}{3}$ c) $-\frac{1}{2}$ d) $-\frac{3}{2}$
32. The area of incircle of an equilateral triangle is $154cm^2$ . The perimeter of the triangle is
a)71.5 cm b)71.7 cm c)72.3 cm d)72.6 cm. 33. The number of zeroes in a cubic polynomial may be at most.
a)1 b)2 c)3 d)4
34. The point on X-axis equidistant from points $A(2,4)$ and $B(-4,8)$ is.
a)(-5,0) b) (5,0) c) (0,0) d) None of these.
35. If the product of Zeros of the polynomial $f(x) = ax^3 - 6x^2 + 11x - 6$ is 4, then a is equal to
a) $\frac{3}{2}$ b) $-\frac{3}{2}$ c) $\frac{2}{3}$ d) $-\frac{2}{3}$
36. The minute hand of a clock is 10cm long. The area swept by the minute hand between 8:00am to
8:25am isa)120.95 $cm^2$ b)130.95 $cm^2$ c)140.95 $cm^2$ d)150.95 $cm^2$ .
37. Distance between two parallel tangents of a circle of radius 3 cm is
a) 4cm b)5cm c)6 cm d)8 cm 38. Value of <b>tan 5 tan 10 tan 45 tan 80 tan 85</b> is
a) 0 b)1 c)2 d)3
39. The smallest odd composite number is
a)5 b)3 c)7 d)9
40. Which term of the AP 20,17,14,is first negative term?
a) $8^{\text{th}}$ b) $6^{\text{th}}$ c) $9^{\text{th}}$ d) $7^{\text{th}}$
41. Find the distance between the two points $(0,0)$ and $(a\cos\theta, a\sin\theta)$ . 42. Two dice thrown together. Find the probability that sum of the two numbers will be multiple of 4
43. A number when divided by 53 gives 34 as quotient and 21 as a remainder. Find the number.
44. All equilateral triangle are
45. The class in which mode lies is called the
46. The coefficient of x and the constant term in a linear poly nomial are 5 and -3, respectively, find its
zero. 47. Find the area of the area of the largest triangle that can be inscribed in a semi-circle of radius r
unit.
48. The common point of a tangent to a circle and the circle is called
49. The decimal representation of $\frac{11}{2^8 \times 5}$ will
a) terminate after 1 decimal place
b) terminate after 2 decimal places
c) terminate after 3 decimal place
d) not terminate.

## Lion's DAV PS

### MCQ/FILL IN THE BLANKS/SHORT ANSWER CLASS X

Q.1.The product of HCF and LCM of 18 and 16 is

(a)240 (b) 144 (c) 288 (d) 230

Q.2. Find the value of K for which the pair of linear equation 4x+6y-1=0 and 2x-ky=7 represent parallel

Parallel lines:

(a)2 (b)-3 (c)4 (d)-2

Q3.If the difference of the roots of the equation  $x^2-6x+c=0$  be 1, then

(a) $b^2$ -4c+1=0 (b) $b^2$ +4c=0 (c) $b^2$ -4c-1=0 (d) $b^2$ -4c=0

Q.4.10<sup>th</sup> term of the sequence  $\sqrt{3}, \sqrt{12}, \sqrt{27}$  is.....

(a) $\sqrt{243}$  (b) $\sqrt{300}$  (c) $\sqrt{363}$  (d) $\sqrt{432}$ 

Q.5. Sides of two similar triangles are in the ratio 4:9. Areas of those triangles are in the ratio

(a)2:3 (b)4:9 (c)81:16 (d)16:81

Q.6.Ifsec A = 2 where A is an acute angle, then find the value of tan A.

(a)  $\frac{1}{\sqrt{3}}$  (b) 1 (c)  $\sqrt{3}$  (d)0

Q.7.If tangent PA and PB from a point P to a circle with centre O are inclined to each other at angle of

80°, then < POA is equal to

(a)50 <sup>0</sup>	(b)60°	(c)70°	(d)80°
(4)50	(8)00	(0),0	(4)00

Q.8.All\_\_\_\_\_traingle are similar.

(a) Isosceles (b) Equilateral (c) Scalene (d) Equal

Q.9. Area of a sector of angle p (in degrees) of a circle with radius R is

 $\frac{p}{180} \times 2\pi R$  (b)  $\frac{p}{180} \times \pi R^2$  (c)  $\frac{p}{360} \times 2\pi R$  (d)  $\frac{p}{720} \times 2\pi R^2$ 

Q.10. The class mark of the class 10-25 is -

(a)16.5 (b) 18.5 (c) 19.5 (d) 17.5

Q11. The probability of throwing a number greater than 2 with a fair dice is

(a)  $\frac{2}{3}$  (b)  $\frac{5}{6}$  (c)  $\frac{1}{3}$  (d)  $\frac{2}{5}$ 

Q12.The pair of equation 2x-5y+4=0 and 2x+y-8=0 has

(a)a unique solution (b)exactly two solution (c)infinitely many solution (d)no solution

Q13.If a pair of linear equation is consistent, then the lines will be\_\_\_\_\_.

Q.14 If the length of shadow of a tower is increasing than angle of elevation of the sun is\_\_\_\_\_.

Q15.The common point of a tangent to a circle and the circle is called\_\_\_\_\_\_.

Q16.Cumulative frequency curve is also called\_\_\_\_\_\_.

Q17.Are the points (0,5), (0,-9) and (3,6) collinear. ? Justify your answer.

Q18.Examine  $\frac{77}{210}$  is a terminating decimal or not?

- Q.19. Determine the values of m and n so that the prime factorization of 1000 is expressible as  $2^m \times 5^n$ .
- Q.20. Find the zeroes of the polynomial  $t^2$  15.
- Q21.Find a quadratic polynomial if the sum and product of zeros are -3 and 2 respectively.

Q22. Find the number of zeroes of the polynomial depicted in the figure.



Q.23.The pair of equation x+3y=6 and 2x-3y=12 is consistent or in consistent?

Q.24. Find the nature of roots of the equation  $2x^2-6x+3=0$ 

Q.25. Find the discriminant of the equation  $x^2$ -3x-10=0

Q.26.Find number of terms in A.P 10, 7, 4 ------

Q27.Find the sum of the first Five prime numbers.

Q28. Find the common difference of the A.P 3,  $3+\sqrt{2}$ ,  $3+2\sqrt{2}$ .

Q29. Find the distance between the points (0,0) and (36,15)

Q.30. At the same time of the day the length of the shadow of a tower is equal to its height. Find the sun's altitude at that time.

С

Q.31. If 15cot A= 8, find sin A and sec A. 8

Q32. In the given figure, P divides AB internally. Find the ratio



В

Q33. A chord of a circle of radius 14 cm subtends a right angle at the centre. What is the area of the minor sector?  $(\pi = \frac{22}{7})$ Q34.2 cubes each of volume 64 cm<sup>2</sup> are joined end to end. Find the surface area of the resulting cuboid. Q35.A metallic sphere of radius 4.2 cm is melted and recast into the shape of a cylinder of radius 6 cm. Find the height of cylinder.

Q36. Find the ratio of volume of a cone and cylinder of equal diameter and of equal height.

Q37.The radii of two circles are 19cm and 9 cm respectively .Find the radius of the circle which has circumference equal to the sum of the circumferences of the two circles.

Q38.If the mode of a distribution is 8 and its mean is also 8, then find the median.

Q39.A card is drawn from a well shuffled deck of 52 cards. Find the probability of getting the Jack of Hearts.

Q40 If P(E)=0.05, what is the probability of 'not E'.?

## DAV PUBLIC SCHOOL, GEVRA PROJECT Question Bank 2019-20

MATHS

- 1. Find the [HCF x LCM] for the numbers 100 and 190.
- 2. If  $\sec^2 \theta (1 + \sin \theta) (1 \sin \theta) = k$ , then find the value of k
- 3. Find the discriminant of the quadratic equation  $3\sqrt{3} x^2 + 10x + \sqrt{3} = 0$ .
- 4. If  $\frac{4}{5}$ , a, 2 are three consecutive terms of an AP, then find the value of a.
- 5. △ABC with vertices A (-2, 0), B(2, 0) and C (0, 2) is similar to ADEF with vertices D (- 4, 0), E (4, 0) and F (0, 4). State true or false and justify your answer.
- 6. In Figure (1),  $\triangle ABD$  is a right triangle, right angled at A and AC 1 BD. Prove that  $AB^2 = BC.BD$ .



Class : X

- 7. Which term of the AP 3, 15, 27, 39,... will be 120 more than its 21st term?
- 8. If the points A(4.3) and B(x, 5) are on the circle with the centre 0(2,3), find the value of x
- 9. Find the sum of 0.68 + 0.73.
- 10. If x a, y b is the solution of the pair of equations x y = 2 and x + y = 4, then find the value of a and b.
- 11. Two dice are thrown simultaneously. What is the probability that come up on either of them b) 5 will come up on at least one
- 12...For what value of k will k + 9.2k -1 and 2k + 7 are the consecutive terms of an A.P.?

$$\frac{cosec^2\theta - sec^2\theta}{sacc^2\theta + sec^2\theta}$$

- $\sqrt{5}$ . What is the value of  $\overline{cosec^2\theta + sec^2\theta}$ ? 13. Given that tan
- 14. Find a point on the y-axis which is equidistant from the points A (6,5) and B (- 4, 3).
- 15. One card is drawn from a well shuffled deck of 52 playing cards. Find the probability of getting a) a non-face card, b) a black king or a red gueen.

16. For what value of k the quadratic equation 
$$x^2 - kx + 4 = 0$$
 has equal roots?

- 17. If tan A =  $\frac{2}{4}$  and A + B = 90°, then what is the value of cot B?
- 18. Write 98 as product of its prime factors.

 $\theta =$ 

- 19. Show that x = -2 is a solution of  $3x^2 + 13x + 14 = 0$ .
- 20. Find distance between the points (0,5) and (- 5, 0).

$$BC = 1$$

- 21. If it is given that  $\triangle ABC \sim \triangle PQR$  with  $\frac{BC}{QR} = \frac{1}{3}$  then find  $\frac{ar(\triangle PQR)}{ar(\triangle ABC)}$ 22. State the Euclosure of ABC
- 22. State the Fundamental Theorem of Arithmetic.

a) 5 will not

- 23. What is the nature of roots of the quadratic equation  $4 \times 2 12x 9 = 0$ ?
- 24. Express sin 67° + cos 75° in terms of trigonometric ratios of angles between 0° and 45°.
- 25. A and B are respectively the points on the sides PQ and PR of a APQR such that PQ = 12.5 cm, PA = 5 cm, BR = 6 cm and PB = 4 cm. Is  $AB \parallel QR$ ? Give reason.
- 26. If the points A (1, 2), B (0, 0) and C (a, b) are collinear, then what is the relation between a and b? 27. Find the common difference of an AP in which  $a_{18} - a_{14} = 32$ .
- 28. If the sum of the areas of two circles with radii  $R_1$  and  $R_2$  is equal to the area of a circle of radius R, then
  - (b)  $R_1^2 + R_2^2 = R^2$ (d)  $R_1^2 + R_2^2 < R^2$ (a)  $R_1 + R_2 = R$

- (c)  $R_1 + R_2 < R$
- 29. If the sum of the circumferences of two circles with radii R1 and R2 is equal to the circumference of a circle of radius R, then
  - (a)  $R_1 + R_2 = R$
  - (b)  $R_1 + R_2 > R$
  - (c)  $R_1 + R_2 < R$

(d) Nothing definite can be said about the relation among  $R_1R_2$  and R

30. Area of the largest triangle that can be inscribed in a semi-circle of radius r units is

1			
(a) $r^2$ sq units (b) $\overline{2} r^2$			sq units
31. The area of the circle that ca	n be inscribed in a s	quare of side 6 cm is	
(a) 36π cm <sup>2</sup> (b) 18	$3\pi \text{ cm}^2$	(c) 12π cm <sup>2</sup>	(d) 9π cm <sup>2</sup>
32 . The shadow of a 5m	long stick is 2m	long. At the same time	the length of the
shadow of a 12.5m high tree (in m)	is		
a.3.0	b.3.5 c.	4.5	d.5.0
33. In ∆ABC ,AB= 6√3 cm. ,	AC=12cm &	BC =6 cm, then $\angle B$ is	
a. 45 <sup>0</sup>	b.60 <sup>0</sup>	c. 90 <sup>0</sup>	d. 120 <sup>0</sup>
34. Corresponding sides of tv	o similar triangles a	re in the ratio 4:9. Areas of	of these triangles are in
the ratio	-		-
a. 2:3 b	.4:9	c. 9:4	d. 16:81
35. The height of an equilate	eral triangle having e	ach side 12 cm is	
a.6 $\sqrt{2}$ cm b.6 $\sqrt{3}$ cm	C.3	3√6 cm	d.6√6 cm
36. The distance of the point	(-3,4) from x-axis is		
a. 3	b3	c. 4	d. 5
37.If A(-6,7) and B(-1,-5) are	two given points the	n the distance 2AB is	
a. 13 b.26		c. 169	d.238
38.If P(-1,1) is the midpoint o	the line segment jo	ining A(-3,b) and B(1,b+4	) then b=?
a.1 b	1	c. 2	d.0
39. If the points A(1,2), O(0,0	)) and C(a,b) are col	linear then	
	a=2b	c. 2a=b	d. a+b=0
40. sec30 <sup>0</sup> /cosec60 <sup>0</sup> =?			
a. 2/√3 b	. √3/2	c. √3	d. 1
41. $\sec^2 10^0 - \cot^2 80^0 = ?$			
a. 1 b.0		c.3/2	d. ½
42. $\sec^2 60^0$ -1= ?			
a.2 b.3	}	c. 4	d. 0
43. If $tan\Theta = \sqrt{3}$ then $sec\Theta = ?$			
a. 2/√3 b.√	3/2	c.1/2	d. 2
44.If the height of a vertical p	ole is $\sqrt{3}$ times the ler	ngth of its shadow on the	ground then the angle
of elevation of the sun at that time			
a.30 <sup>0</sup> b. 4	45 <sup>0</sup>	c. 60 <sup>0</sup>	d. 75 <sup>0</sup>
45. If a pole 12 m high casts	a shadow 4√3 m long	g on the ground then the	sun"s eleviation is
a. 60° b.4	15°	c.30°	d.90 <sup>0</sup>

46. the shadow of a 5m long stick is 2m long. At the same time, the length of the shadow of a 12.5m high tree is a.3m b.3.5m c.4.5m d.5m 47. From a point on the ground ,30m away from the foot of a tower, the angle of elevation of the top 30°. The height of the tower is is b.10√3 d.30√3 m a. 30m c. 10m 48. The number of tangents that can be drawn from an external point to a circle is a. 1 b. 2 c. 3 d. 4 49. Which of the following pairs of lines in a circle cannot be parallel a. two chords b. a chord and a tangent c. two tangents d. two diameters 50. If a chord AB subtends an angle of  $60^{\circ}$  at the centre of a circle, then the angle between the tangents to the circle drawn from A and B is c. 90<sup>0</sup> a.  $30^{\circ}$ b.  $60^{\circ}$ d. 120<sup>0</sup> 51. If two tangents inclined at an angle of 60<sup>0</sup> are drawn to a circle of radius 3 cm then the length of each tangent is a. 3 cm b.  $3\sqrt{3}/2$  cm c. 3√3 cm d. 6 cm

## D.A.V. PUBLIC SCHOOL, ACC JAMUL SUBJECT-MATHS CLASS (X) MULTIPLE CHOICE QUESTIONS

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1. The HCF and LCM of two numbers are 33 and 264 respectively. When the first number is completely divided by 2 the quotient is 33. The other number is:

(a) 66 (b) 130 (c) 132 (d) 196

2. 4 Bells toll together at 9.00 am. They toll after 7, 8, 11 and 12 seconds respectively. How many times will they toll together again in the next 3 hours?

(a) 3 (b) 4 (c) 5 (d) 6

3. 
$$\pi - \frac{22}{7}$$

(a) a rational number (b) an irrational number (c) a prime number (d) an even number <u>441</u>

4. The decimal expansion of number  $2^2 \times 5^3 \times 7$  has:

(a) a terminating decimal
 (b) non-terminating but
 (c) non-terminating non repeating
 (d) terminating after two places of decimal

5. The quadratic polynomial whose sum of zeroes is 3 and product of zeroes is -2 is :

(a) 
$$x^2 + 3x - 2$$
 (b)  $x^2 - 2x + 3$  (c)  $x^2 - 3x + 2$  (d)  $x^2 - 3x - 2$ 

6. If p(x) = ax + b, then zero of p(x)

(a) a (b) b (c)  $\frac{-a}{b}$  (d)  $\frac{-b}{a}$ 

7. Graph of a quadratic polynomial is a

(a) Straight line	(b) Circle		(c)	Parabola	(d)	Ellipse	
8 A quadratic polynomial whose one zero is 6 and sum of the zeroes is 0, is (b) $x^2 - 36$ (c) $x^2 - 6$ (d) $x^2 - 3$ (e) $x^2 - 6x + 2$							
9. If $(x + 1)$ is a factor of	$2x^3 + ax^2 + 2bx + 1$	, then f	find the val	ues of a and	b given that	2a-3b=4	Ļ
(a) $a = -1, b = -2$ (	b) $a = 2, b = 5$	(c)	) $a = 5, b =$	= 2	(0	d) $a = 2, b$	= 0
<ul><li>10. The number of zeros</li><li>(b) 2</li></ul>	es that polynomial f (c) 0	$(\mathbf{x}) = (\mathbf{x})$	$(d) = (d)^{2} + 4 d$	can have is:			(a) 1
<ul><li>11. What will be the sol</li><li>(b) x=2,y=-1</li></ul>	ution of these equat (c) x=-		•	bx -ay=a+b	(a) x=1, y (d) x=1,		
12. A fraction becomes. denominator. Find the fra		om the i	numerator a	and it become	es. When 8	is added	to its
(a) 4/12 (b) 3	/13		(c) 5	/12		(d) 11/	7
13. If $x=a$ , $y=b$ is the so	olution of the pair of	equati	on x-y=2 a	nd x+y=4 the	en what will	be value of	f a and b
(a) 2,1	(b) 3,1		(c) 4,	,6		(d) 1,2	
14 If the sum of <i>n</i> terms	s of an A.P. is then i	ts <i>n</i> th t	erm is				
(a) 4 <i>n</i> – 3	(b) $3n - 4$		(c) 4 <i>n</i> +	- 3		(d)	3 <i>n</i> + 4
15. Sum of $n$ terms of the formula $15 + 15 = 10^{-10}$	the series $\sqrt{2} + \sqrt{8} + \sqrt{8}$	√ <u>18</u> + √	/32 is				
(a) 1		(b) <u>r</u>	$\frac{n(n+1)}{\sqrt{2}}$				
(c) $\frac{n(n+1)}{2}$		(d) 2	tn (n + 1)				
16. Sum of first $n$ natu	ral number is						
(a) $\frac{n(n-1)}{2}$		(b) -	$\frac{n(n+1)}{2}$				
(c) $\frac{n(n+1)(2n+1)}{6}$	1)	(d)	$\frac{n(n+1)}{2}$				
17. In an A.P., $a_{m+n} + a_n$							
(a) 0	(b) 1		(c) 2 <i>a</i>	lm	(d)	$a_m$	
18 Every quadratic p	olynomial can have	at mos	t				
(a) three zeros	(b) one zero		(c) two zero	OS	(d) none of	of these	
19 If $x^2 + 5px + 16$ hav (a) $p > \frac{8}{5}$	e no real roots, then (b) $\frac{-8}{5}$		(c) <b>p</b>	$0 < \frac{-8}{5}$	(d)	none of the	se

20 For  $ax^2 + bx + c = 0$ , which of the following statement is wrong? (a) If  $b^2 - 4ac$  is a perfect square, the roots are rational. (b) If  $b^2 = 4ac$ , the roots are real and equal. (c) If  $b^2 - 4ac$  is negative, no real roots exist. (d) If  $b^2 = 4ac$ , the roots are real and unequal. The roots of the equation  $9x^2 - bx + 81 = 0$  will be equal, if the value of b is 21 (a)  $\pm$  9 (b)  $\pm 18$  $(c) \pm 27$  $(d) \pm 54$ Which of the following is not a quadratic equation? 22 (b)  $x + \frac{1}{x} = 1$ (a)  $3x^2 - 5x + 9$ (c)  $x^2 - 9x = 0$ (d)  $x^3 - 2x - \sqrt{5} = 0$ 22. If the equation  $x^2 - kx + 1$ , have no real roots, then (b) -3 < k < 3(a) -2 < k < 2(c) k > 2(d) k < -223. Roots of quadratic equation  $x^2 - 3x = 0$ , will be (b) 0, -3(a) 3 (d) none of these (c) 0, 324. Value of D when root of  $ax^2 + bx + c = 0$  are real and unequal will be (a) D > 0(b) D > 0(c) D < 0(d) D = 025. Find the distance of the point (-6, 8) from the origin. (c) 10 (d) 9 (a) 8 (b) 11 26. Find the ratio in which the line joining the points (6, 4) and (1, -7) is divided by x-axis. (b) 2 : 7 (a) 1 : 3 (c) 4 : 7 (d) 6 : 7 Find the value of k if the points A(2, 3), B(4, k) and C(6, -3) are collinear. 27. (b) 3 (c) 0 (a) 2 (d) 1 28. 1. In the given figure, PA and PB are tangents from P to a circle with centre O. If  $\angle AOB = 130^{\circ}$ , then find ∠APB. (a)  $40^{\circ}$ (b)  $55^{\circ}$ (c)  $50^{\circ}$ (d) 60° 2. In the given figure, PT is a tangent to a circle whose centre is O. If PT = 12 cm and PO = 13 cm then find teh radius of the circle. (a) 5 cm (b) 4 cm (c) 6 cm (d) 4.5 cm

3. In the given figure, PT is a tangent to the circle and O is its centre. Find OP.
(a) 16 cm
(b) 15 cm
(c) 18 cm
(d) 17 cm

4. In the given figure, ABC is a right right angled at B such that BC = 6 cm and AB = 8 cm. Find the radius of the circle.
(a) 3 cm
(b) 2 cm
(c) 4 cm
(d) 5 cm

29. The probability of a leap year selected at random contain 53 Sunday is:

(a) 53/ 366	(b) 1/7	(c) 2/7	(d) 53/365					
•	and 2 blue marbles. A ma	arble is drawn at random. The	probability of drawing					
a black ball is : (a) 3/5 31. The probability that it (a) 0.25	(b) 2/5 t will rain tomorrow is 0.8 (b) 0.145	(c) 0/5 85. What is the probability tha (c) 3/20	(d) 1/5 at it will not rain tomorrow (d) none of these					
32. The sum of the probab	ility of an event and non	event is:						
(a) 2	(b) 1	(c) 0	(d) none of these.					
33. What is the area of a se	emi–circle of radius 5 cm	?						
(a) 78.57 cm	(b) 71.42 cm	(c) 63.18 cm	(d) 79.86 cm					
34. Centroid of triangle wh a) (0, 2)	nose vertices are A (-4, 6 b) (0, 3)	b), B (2, −2) and C (2, 5) is. c) (1, 3)	d) (1, 2)					
35. If first term of an AP is a) (b-a)/n+1	s a and nth term is b, then b) (b-a)/n-1	n its common difference is c) (b-a)/n	d) none of these					
36. If k, 2k-1 and 2k+1 ar	e three consecutive terms	s of an A.P. Find the value of	k.					
<ul><li>37. A funnel is the combin</li><li>a). Cone and a cylinder</li><li>c). Hemisphere and cylind</li></ul>		b). Frustum of a cone and cone	nd cylinder					
38 If the point (x, y) is	equidistant from the poin	tts $(a + b, b - a)$ and $(a - b, a - b)$	+ b), prove that $bx = ay$ .					
39. If the n <sup>th</sup> term of the A.	P1, 4, 9, 14, is 129	9, find the value of n.						
40. The shadow of a 30 m elevation of the sun at that	0	1 at some time of the day is 10	3 m long. Find the angle of					
41. If three different coins	are tossed together, then	find the probability of getting	two heads.					
	42. A number is chosen at random from the numbers - 3, -2, -1, 0, 1, 2, 3. What will be the probability that square of this number is less then or equal to 1?							
43. If the distance between	43. If the distance between the points $(4, k)$ and $(1, 0)$ is 5, then what can be the possible values of k?							
44. The ratio of the height of elevation of the sun?	of a tower and the length	of its shadow on the ground	is 3:1. What is the angle					
45. Volume and surface ar hemisphere?	45. Volume and surface area of a solid hemisphere are numerically equal. What is the diameter of hemisphere?							
46. If the angle between two	tangents drawn from an e	external point P to a						

circle of radius a and centre O, is  $60^{\circ}$ , then find the length of OP.

47. What is the common difference of an A.P. in which  $a_{21} - a_7 = 84$ ?

48. The probability of selecting a rotten apple randomly from a heap of

900 apples is 0.18. What is the number of rotten apples in the heap ?

49. Find the value of a, for which point P (a, 2) is the mid-point of the line segment joining the points Q(-5,4) and R(-1,0)

50. If nth term of an A.P. is (2n+1), what is the sum of its first three terms?

DAV PS, Chhal Mathematics (041) Q1. The ratio between the HCF and LCM of 5,15,20 is (b) 4:3 (a) 9:1 (c) 11:1 (d) 12:1 Q2. If A = 2n+13, B = n+7, where n is a natural number, then HCF of A and B is (a) 2 (d) 4 (b) 1 (c) 3 Q3. If two positive integers p and q can be expressed as  $p = ab^2$  and  $q = a^3b$ ; Where a, b being numbers, then LCM(p,q) is equal to (a) ab (b)  $a^2b^2$  $(c) a^{3}b^{2}$  $(d)a^2b^3$ Q4. Which of the following rational numbers have a terminating decimal expansion. (a) 125/441 (b) 77/210 (c) 15/1600 (d) 129/300 Q5. The decimal expansion of number  $\frac{441}{2^25^37^2}$  has \_\_\_\_\_\_ decimal expansion. Q6. The decimal expansion of 17/8 will terminate after how many places of decimal. (d) will not terminate (a) 1 (b) 2 (c) 3 Q7. If one of the zeros of the quadratic polynomial  $(k-1)x^2 + kx + 1$  is -3, then the Value of k is (a) 4/3 (b) -4/3 (c) 2/3(d) -2/3Q8. If the zeroes of the quadratic polynomial  $x^2 + (a+1)x + b$  are 2 and -3 then (a) a = -7, b = -1 (b) a = 5, b = -1 (c) a = 2, b = -6 (d) a = 0, b = -6Q9. If  $p(x) = ax^2 + bx + c$ , then -b/a is equal to (b) 1 (a) 0 (c) product of zeros (d) sum of zero Q10. if  $p(x) = ax^2 + bx + c$  and a+b+c, then one zero is (a) -b/a (b) c/a (c) b/c (d) none of these Q11. The number of polynomials having zeroes as -2 and 5 is (a) 1 (d) more than 3 (b) 2 (c) 3 Q12. If the product of the zeroes of  $x^2 - 3kx + 2k^2 - 1$  is 7, then the Values of k are \_\_\_\_\_ and Q13. The pair of linear equations 2x+3y = 5 and 4x + 6y = 10 is (a) Inconsistent (b) consistent (c) dependent consistent (d) none of these Q.13 The pair of equations y = 0 and y = -7 has (a) one solution (b) two solution (c) no solution (d) infinite solution Q.14 The pair of equations x = a and y = b graphically represents lines which are (a) Parallel (b) coincident (c) intersecting at (a,b) (d) intersecting at (b,a) Q15 On solving the pair of linear equations 2x-y = 2 and 5x + 2y = 14 by substitution method, values of x and y are \_\_\_\_\_ and \_\_\_\_\_ Q.16 If x = 2 is a solution of the equation  $x^2 - 5x + 6k = 0$ , then the value of k is \_\_\_\_\_. 0.17  $(x^2 + 1)^2 - x^2 = 0$  has (b) two real roots (c) one real roots (d) no real roots (a) four real roots Q.18 If  $\alpha, \beta$  are roots of  $x^2 + 5x + a = 0$  and  $2\alpha + 5\beta = -1$  then  $\alpha$  is equal to \_\_\_\_\_. Q.19 If p, q, r are in A.P, then  $p^3 + r^3 - 8q^3$  is equal to (a) 4pqr (c) 2pqr (b) -6pqr (d) 8pqr Q. 20 If the nth term of an A.P. is (2n + 1), then the sum of its three terms is (b) 15 (a) 6n+3 (c) 12 (d) 21 Q.21 All circle are \_\_\_\_\_. (congruent / similar).

	$C = \langle C $ and $AB = 3 DE$ .Th nt but not similar .	en the two triangles are (b) similar but not
( c ) neither congruent nor similar	(d) congruent and similar.	
Q.23 In triangle ABC, $AB = 6\sqrt{3}$ cm, $AC = 12$ cm		ngle B is
Q.24 The lengths of diagonals of a rhombus are		
rhombus is.	To em une 12 em. men u	e lengui or the side or the
(a) 9cm (b) 10cm	(c) 8 cm	(d) 20 cm
Q.25 A triangle with vertices $(4, 0)$ , $(-1, -1)$ and $(3)$		(-)
	(b) right angled triangle	
(c) isosceles right angled triangle.	(d) none of	these.
Q.26 The points (-4,0), (4,0) and (0,3) are the vertice		
	(b) isosceles triangle	
(c) equilateral triangle	(d) scalene triangle.	
Q.27 If the distance between the points (4,p) and (1		
	(c) -4 only (d) (	
Q.28 If P( $a/3,4$ ) is the mid point of the line segme	ent joining the points Q(-6,5	b) and $R(-2,3)$ then the value
of a is		
		-6
Q.29 A straight lines is drawn joining the points (3,4		extended, the ordinate of the
point on the line, whose abscissa is -1 is		aniain. The area of triangle
Q.30 The line $3x + 4y = 24$ cuts the x – axis at A AOB is	and y-axis at B. II O is the	origin, The area of triangle
Q.31 Reciprocal of cotA is		
Q.32 $\frac{2tan30^{\circ}}{1+tan^230^{\circ}}$ is equal to		
(a) $sin60^{\circ}$ (b) $cos60^{\circ}$ (c) $tan$	$60^{\circ}$ (d) $sin30^{\circ}$	
	()	
Q33 $sin2A = 2sinA$ is true when A is equal to		
Q33 sin2A = 2sinA is true when A is equal to (a) $0^0$		) $45^0$ (d) $60^0$
	(b) 30 <sup>0</sup> (c	) $45^{\circ}$ (d) $60^{\circ}$
(a) $0^{0}$ Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) $\frac{1}{2}$	(b) 30 <sup>0</sup> (c value of cos(A+B) is (d) 3/2	) 45 <sup>0</sup> (d) 60 <sup>0</sup>
(a) <b>0</b> <sup>0</sup> Q.34 If triangle ABC is right angled at C, then the	(b) 30 <sup>0</sup> (c value of cos(A+B) is (d) 3/2	) 45 <sup>0</sup> (d) 60 <sup>0</sup>
(a) $0^{0}$ Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) $\frac{1}{2}$	(b) 30 <sup>0</sup> (c value of cos(A+B) is (d) 3/2 ual to	_
(a) $0^{0}$ Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) $\frac{1}{2}$ Q.35 If sinA = cosA, $0^{0} < A < 90^{0}$ , then A is equ	(b) 30 <sup>0</sup> (c value of cos(A+B) is (d) 3/2 ual to	_
(a) $0^0$ Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) $\frac{1}{2}$ Q.35 If sinA = cosA, $0^0 < A < 90^0$ , then A is equ Q.36 The angle of elevation of the Sun, if the length (a) $30^0$	(b) $30^{\circ}$ (c) value of $\cos(A+B)$ is (d) $3/2$ ual to of the shadow of a tower Of (b) $45^{\circ}$ (c) $60^{\circ}$	f height 20m is $20\sqrt{3}$ m is
(a) $0^0$ Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) $\frac{1}{2}$ Q.35 If sinA = cosA, $0^0 < A < 90^0$ , then A is equ Q.36 The angle of elevation of the Sun, if the length	(b) 30 <sup>0</sup> (c value of cos(A+B) is (d) 3/2 ual to of the shadow of a tower Of (b) 45 <sup>0</sup> (c)60 <sup>0</sup> points.	f height 20m is $20\sqrt{3}$ m is (d) 75 <sup>0</sup>
(a) $0^0$ Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) $\frac{1}{2}$ Q.35 If sinA = cosA, $0^0 < A < 90^0$ , then A is equivalent of the sun, if the length (a) $30^0$ Q.37 A tangent to a circle intersect it in	(b) 30 <sup>0</sup> (c value of cos(A+B) is (d) 3/2 ual to of the shadow of a tower Of (b) 45 <sup>0</sup> (c)60 <sup>0</sup> points.	f height 20m is $20\sqrt{3}$ m is (d) 75 <sup>0</sup>
(a) $0^0$ Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) $\frac{1}{2}$ Q.35 If sinA = cosA, $0^0 < A < 90^0$ , then A is equivalent of the sun, if the length (a) $30^0$ Q.36 The angle of elevation of the Sun, if the length (a) $30^0$ Q.37 A tangent to a circle intersect it in Q38 If the area of the circle is numerically equal circle is (a) 4 units (b) 8 units	(b) 30 <sup>0</sup> (c value of cos(A+B) is (d) 3/2 ual to of the shadow of a tower Of (b) 45 <sup>0</sup> (c)60 <sup>0</sup> points. to twice its circumference (c) 2 units	f height 20m is $20\sqrt{3}$ m is (d) $75^{\circ}$ e, Then the diameter of the (d) $\pi$ units.
(a) $0^0$ Q.34 If triangle ABC is right angled at C, then the final (a) 0 (b) 1 (c) $\frac{1}{2}$ Q.35 If sinA = cosA, $0^0 < A < 90^0$ , then A is equivalent (b) A constrained of the sun, if the length (c) $30^0$ Q.37 A tangent to a circle intersect it in Q.38 If the area of the circle is numerically equal circle is (a) 4 units (b) 8 units Q.39 During the conversion of a solid from one shared of the circle is (b) 4 units (c) 1/2 (c)	(b) 30° (c) value of cos(A+B) is (d) 3/2 (d) 3/2 (d) 3/2 (c) 60° (c) 60° (c) 60° (c) 60° (c) 2 units (c) 2 units ape to another, the volume or context (c) 2 units (c) 2 un	f height 20m is $20\sqrt{3}$ m is (d) $75^{\circ}$ e, Then the diameter of the (d) $\pi$ units. f The new shape will
(a) $0^0$ Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) $\frac{1}{2}$ Q.35 If sinA = cosA, $0^0 < A < 90^0$ , then A is equivalent (a) $30^0$ Q.36 The angle of elevation of the Sun, if the length (a) $30^0$ Q.37 A tangent to a circle intersect it in Q38 If the area of the circle is numerically equal circle is (a) 4 units (b) 8 units Q.39 During the conversion of a solid from one shat (a) Increase (b) decrease	(b) 30 <sup>0</sup> (c value of cos(A+B) is (d) 3/2 ual to of the shadow of a tower Of (b) 45 <sup>0</sup> (c)60 <sup>0</sup> points. to twice its circumference (c) 2 units	f height 20m is $20\sqrt{3}$ m is (d) $75^{\circ}$ e, Then the diameter of the (d) $\pi$ units. f The new shape will
(a) $0^{0}$ Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) $\frac{1}{2}$ Q.35 If sinA = cosA, $0^{0} < A < 90^{0}$ , then A is equivalent of the sun, if the length (a) $30^{0}$ Q.36 The angle of elevation of the Sun, if the length (a) $30^{0}$ Q.37 A tangent to a circle intersect it in Q38 If the area of the circle is numerically equal circle is (a) 4 units (b) 8 units Q.39 During the conversion of a solid from one shaft (a) Increase (b) decrease doubled.	<ul> <li>(b) 30°</li> <li>(c) value of cos(A+B) is</li> <li>(d) 3/2</li> <li>(d) 3/2</li> <li>(d) 42°</li> <li>(c) 60°</li> <li>(c) 60°</li> <li>(c) 60°</li> <li>(c) 60°</li> <li>(c) 2 units</li> <li>(c) 2 units</li> <li>(c) remain the volume of</li> <li>(c) remain the volume of</li> </ul>	f height 20m is $20\sqrt{3}$ m is (d) $75^{\circ}$ e, Then the diameter of the (d) $\pi$ units. f The new shape will
<ul> <li>(a) 0<sup>0</sup></li> <li>Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) <sup>1</sup>/<sub>2</sub></li> <li>Q.35 If sinA = cosA, 0<sup>0</sup> &lt; A &lt; 90<sup>0</sup>, then A is equivariant (a) 30<sup>0</sup></li> <li>Q.36 The angle of elevation of the Sun, if the length (a) 30<sup>0</sup></li> <li>Q.37 A tangent to a circle intersect it in</li> <li>Q.38 If the area of the circle is numerically equal circle is (a) 4 units (b) 8 units</li> <li>Q.39 During the conversion of a solid from one shafe (a) Increase (b) decrease doubled.</li> <li>Q.40 The mean of first n natural number is</li> </ul>	(b) 30° (c) value of cos(A+B) is (d) 3/2 (d) 3/2 (d) 3/2 (c) 60° (c) 60° (c) 60° (c) 60° (c) 60° (c) 2 units (c) 2 units (c) 2 units (c) 2 units (c) remain (c) remain (c) (c) remain (c)	f height 20m is $20\sqrt{3}$ m is (d) $75^{\circ}$ e, Then the diameter of the (d) $\pi$ units. f The new shape will unaltered (d) be
<ul> <li>(a) 0<sup>0</sup></li> <li>Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) <sup>1</sup>/<sub>2</sub></li> <li>Q.35 If sinA = cosA, 0<sup>0</sup> &lt; A &lt; 90<sup>0</sup>, then A is equivariant (a) 30<sup>0</sup></li> <li>Q.36 The angle of elevation of the Sun, if the length (a) 30<sup>0</sup></li> <li>Q.37 A tangent to a circle intersect it in</li> <li>Q.38 If the area of the circle is numerically equal circle is (a) 4 units (b) 8 units</li> <li>Q.39 During the conversion of a solid from one shafe (a) Increase (b) decrease doubled.</li> <li>Q.40 The mean of first n natural number is</li> </ul>	(b) 30° (c) value of cos(A+B) is (d) 3/2 (d) 3/2 (d) 3/2 (c) 60° (c) 60° (c) 60° (c) 60° (c) 60° (c) 2 units (c) 2 units (c) 2 units (c) 2 units (c) remain (c) remain (c) (c) remain (c)	f height 20m is $20\sqrt{3}$ m is (d) $75^{\circ}$ e, Then the diameter of the (d) $\pi$ units. f The new shape will unaltered (d) be
<ul> <li>(a) 0<sup>0</sup></li> <li>Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) ½</li> <li>Q.35 If sinA = cosA, 0<sup>0</sup> &lt; A &lt; 90<sup>0</sup>, then A is equeled at C, the angle of elevation of the Sun, if the length (a) 30<sup>0</sup></li> <li>Q.36 The angle of elevation of the Sun, if the length (a) 30<sup>0</sup></li> <li>Q.37 A tangent to a circle intersect it in</li> <li>Q.38 If the area of the circle is numerically equaled circle is (a) 4 units (b) 8 units</li> <li>Q.39 During the conversion of a solid from one shat (a) Increase (b) decrease doubled.</li> <li>Q.40 The mean of first n natural number is</li> <li>D.A.V PUBLIC SCI</li> </ul>	(b) 30° (c) value of cos(A+B) is (d) 3/2 (d) 3/2 (d) 3/2 (c) 60° (c) 60° (c) 60° (c) 60° (c) 60° (c) 2 units (c) 2 units (c) 2 units (c) 2 units (c) remain (c) remain (c) remain (c) remain (c) (c) remain (c) (c) remain (c)	f height 20m is $20\sqrt{3}$ m is (d) $75^{\circ}$ e, Then the diameter of the (d) $\pi$ units. f The new shape will unaltered (d) be <b>CO, BHILAI</b>
<ul> <li>(a) 0<sup>0</sup></li> <li>Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) <sup>1</sup>/<sub>2</sub></li> <li>Q.35 If sinA = cosA, 0<sup>0</sup> &lt; A &lt; 90<sup>0</sup>, then A is equivalent (a) 30<sup>0</sup></li> <li>Q.36 The angle of elevation of the Sun, if the length (a) 30<sup>0</sup></li> <li>Q.37 A tangent to a circle intersect it in</li> <li>Q.38 If the area of the circle is numerically equal circle is (a) 4 units (b) 8 units</li> <li>Q.39 During the conversion of a solid from one shat (a) Increase (b) decrease doubled.</li> <li>Q.40 The mean of first n natural number is</li> <li>D.A.V PUBLIC SCI CLASS- 10</li> </ul>	(b) 30° (c) value of cos(A+B) is (d) 3/2 ual to of the shadow of a tower Of (b) 45° (c) 60° points. to twice its circumference (c) 2 units ape to another, the volume o (c) remain the volume o (c) remain the volume o SUBJECT- MATHER	f height 20m is $20\sqrt{3}$ m is (d) $75^{\circ}$ e, Then the diameter of the (d) $\pi$ units. f The new shape will unaltered (d) be <b>CO, BHILAI</b>
<ul> <li>(a) 0<sup>0</sup></li> <li>Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) <sup>1</sup>/<sub>2</sub></li> <li>Q.35 If sinA = cosA, 0<sup>0</sup> &lt; A &lt; 90<sup>0</sup>, then A is equivalent of the sum of the sum of the sum of the sum of the length (a) 30<sup>0</sup></li> <li>Q.37 A tangent to a circle intersect it in</li> <li>Q.38 If the area of the circle is numerically equal circle is (a) 4 units (b) 8 units</li> <li>Q.39 During the conversion of a solid from one shat (a) Increase (b) decrease doubled.</li> <li>Q.40 The mean of first n natural number is</li> <li>D.A.V PUBLIC SCI CLASS- 10 SHORT AN</li> </ul>	(b) 30° (c) value of cos(A+B) is (d) 3/2 ual to of the shadow of a tower Of (b) 45° (c) 60° to twice its circumference (c) 2 units ape to another, the volume o (c) remain the volume o (c) remain the volume o SUBJECT- MATH SWER QUESTIONS	f height 20m is $20\sqrt{3}$ m is (d) $75^{\circ}$ e, Then the diameter of the (d) $\pi$ units. f The new shape will unaltered (d) be <b>CO, BHILAI</b> IEMATICS
<ul> <li>(a) 0<sup>0</sup></li> <li>Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) <sup>1</sup>/<sub>2</sub></li> <li>Q.35 If sinA = cosA, 0<sup>0</sup> &lt; A &lt; 90<sup>0</sup>, then A is equivalent (a) 30<sup>0</sup></li> <li>Q.36 The angle of elevation of the Sun, if the length (a) 30<sup>0</sup></li> <li>Q.37 A tangent to a circle intersect it in</li> <li>Q.38 If the area of the circle is numerically equal circle is (a) 4 units (b) 8 units</li> <li>Q.39 During the conversion of a solid from one shat (a) Increase (b) decrease doubled.</li> <li>Q.40 The mean of first n natural number is</li> <li>D.A.V PUBLIC SCI CLASS- 10</li> </ul>	(b) 30° (c) value of cos(A+B) is (d) 3/2 ual to of the shadow of a tower Of (b) 45° (c) 60° to twice its circumference (c) 2 units ape to another, the volume o (c) remain the volume o (c) remain the volume o SUBJECT- MATH SWER QUESTIONS	f height 20m is $20\sqrt{3}$ m is (d) $75^{\circ}$ e, Then the diameter of the (d) $\pi$ units. f The new shape will unaltered (d) be <b>CO, BHILAI</b> IEMATICS
(a) $0^{0}$ Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) <sup>1</sup> / <sub>2</sub> Q.35 If sinA = cosA, $0^{0} < A < 90^{0}$ , then A is equ Q.36 The angle of elevation of the Sun, if the length (a) $30^{0}$ Q.37 A tangent to a circle intersect it in Q.38 If the area of the circle is numerically equal circle is (a) 4 units (b) 8 units Q.39 During the conversion of a solid from one sha (a) Increase (b) decrease doubled. Q.40 The mean of first n natural number is <b>D.A.V PUBLIC SCI</b> CLASS- 10 SHORT AN Q.1. The decimal expansion of $\frac{21}{24}$ will termin (a) 1 (b) 2	(b) 30° (c) value of cos(A+B) is (d) 3/2 ual to of the shadow of a tower Of (b) 45° (c) 60° to twice its circumference (c) 2 units ape to another, the volume o (c) remain the volume o (c) remain the volume o SUBJECT- MATH SWER QUESTIONS	f height 20m is $20\sqrt{3}$ m is (d) $75^{\circ}$ e, Then the diameter of the (d) $\pi$ units. f The new shape will unaltered (d) be <b>CO, BHILAI</b> IEMATICS
(a) $0^{0}$ Q.34 If triangle ABC is right angled at C, then the (a) 0 (b) 1 (c) <sup>1</sup> / <sub>2</sub> Q.35 If sinA = cosA, $0^{0} < A < 90^{0}$ , then A is equivalent of the sum of the sum of the length (a) $30^{0}$ Q.37 A tangent to a circle intersect it in Q.38 If the area of the circle is numerically equal circle is (a) 4 units (b) 8 units Q.39 During the conversion of a solid from one shared (a) Increase (b) decrease doubled. Q.40 The mean of first n natural number is <b>D.A.V PUBLIC SCU</b> CLASS- 10 SHORT AN Q.1. The decimal expansion of $\frac{21}{24}$ will termine	(b) 30° (c) value of cos(A+B) is (d) 3/2 (d) 3/2 (d) 3/2 (d) 3/2 (d) 45° (c) 60° (c	f height 20m is $20\sqrt{3}$ m is (d) $75^{\circ}$ e, Then the diameter of the (d) $\pi$ units. f The new shape will unaltered (d) be <b>CO, BHILAI</b> IEMATICS aces of decimal?

	a) $\frac{33}{50}$	b)	2 3		c)	111 167				d)	<u>1</u> 3
0.9	(Ans. b)	. т.		. +1 + f.		·	· ·	<b>.</b>		1 1	
Q.3.	Euclid's Divisio exists uniqu				-	—		-			
	a) 0 < r < b	b)	$0 \leq r < l$	Ь	c)	$0 < r \leq r$	b		d)	$0 \leq r$	$\leq b$
	(Ans. b)										
Q.4.	If $d = LCM$ (36,	198), t	hen the val	ue of d i	s						
	a) 396	b)	198	c)	36			d)	1		
	(Ans. a)										
Q.5.	Which one of the	follow	ving is an ir	rational	num	ber?					
	a) 0.371371371.		b)	2.39	c)	2.4	d)	4.010	01000	1	
	(Ans. d)										
Q.6.	What will be the	maxir	num numbe	er of zer	oes of	a polyno	mial o	of degre	ee n ? (	Ans. n)	
<b>0.7</b>	The graph of a p	lumon	aiol n(x) ic	hown 7	Cho ni	mhonof	<b>ROMOO</b>	a of n(w			

Q.7. The graph of a polynomial p(x) is shown. The number of zeroes of p(x) is.....



(Ans. 3)

- Q.8. If x + 1 is a factor of  $x^2 3ax + 3a 7$ , then the value of a is a) 1 b) -1 c) 0 d) 2 (Ans. a)
- Q.9. If one zero of the polynomial  $9x^2 + 13x + 6a$  is reciprocal of the other, then a is equal to a)  $\frac{1}{9}$  b)  $\frac{2}{3}$  c)  $\frac{3}{2}$  d)  $\frac{1}{6}$ (Ans. c)
- Q.10. A quadratic polynomial whose sum and product of zeroes 3 and 0 respectively is a)  $x^2 + 2x$  b)  $x^2 + 3x$  c)  $x^2 - 3x + 5$  d) x(x - 3)(Ans. d)
- Q.11. The pair of linear equations 3x 5y = 7 and 6x 10y = 7 has a) one solution b) two solutions c) infinitely many solutions d) no solution (Ans. d)
- Q.12. If a pair of linear equations is consistent, then its graphs will bea) coincidentb) parallel c) intersectingd) coincident or intersecting(Ans. d)
- Q.13. The value of k for which the pair of linear equations 4x + 6y 1 = 0 and 2x + ky 7 = 0 represents parallel lines is
  - a) k = 3 b) k = 2 c) k = 4 d) k = -2 (Ans. a)

Q.14. If one root of the equation  $px^2 - 14x + 8 = 0$  is 6 times the other, then p is equal to a) 2 b) 3 c) 1 d) none of these (Ans. b)

Q.15. The quadratic equation  $2x^2 - \sqrt{5}x + 1 = 0$  has

<ul><li>a) 2 distinct real roots</li><li>b) 2 equal real roots</li></ul>	c) no real roots d) more than 2 roots	
(Ans. c) $O_{16}$ Which of the following is a root of the	2 = 0.2	
Q.16. Which of the following is a root of the a) $x = 3$ b) $x = 4$	c) $x = 1$ d) $x = -3$	
(Ans. a)		
Q.17. The value of k for which the equation		
a) $k > \frac{1}{3}$ b) $k \le \frac{1}{3}$	c) $k \ge \frac{1}{3}$	d) $k < \frac{1}{3}$
(Ans. d)	3	3
Q.18. The sum of first five multiples of 3 is	(Ans. 45)	
Q.19. Which term of the A.P 1, 4, 7,	is 88? (Ans. $30$ )	)
Q.20. The common difference of the A.P $$		_
	c) $\sqrt{2}$	d) $2\sqrt{2}$
(Ans. c)		
Q. 21. In $\triangle$ ABC, if DE $\parallel$ BC, $\frac{AD}{DB} = \frac{3}{4}$ and AC	C = 15 cm, then AE =	
(Ans. $\frac{45}{7}$ cm)		
Q. 22. Distance of a point A (0, -3) from the	origin is	
(Ans. 3)		
Q. 23. Mid-point of the line segment joining	points (-2 , 4) and (6, 10) is	
(Ans. $(2, 7)$ ) O 24 The distance between the points (0, 5	) and $(5, 0)$ is	
Q. 24. The distance between the points (0, 5 (Ans. $5\sqrt{2}$ )	)) and (-5,0) is	
Q. 25. Angle in a semicircle is always a	angle	
(Ans Right)	ungro.	
Q. 26. If two circles touch externally, then $\_$	common tangents can be c	lrawn to them.
(Ans. 3)		
Q. 27. A point P is 25 cm from the centre of the	the circle. The radius of the circle	e is 7cm and length of
tangent drawn from P to the circ	leis cm	
(Ans. 24cm)		
Q. 28. If $x = 2 \sin^2 \theta$ and $y = 2 \cos^2 \theta + 1$ , the	$\mathbf{n} \ x + y = \underline{\qquad}.$	
(Ans. 3)		
Q. 29. If $\sin \theta = \frac{3}{5}$ , then $3 \cos \theta + \sin \theta = $	·	
(Ans. 3)		
Q. 30. The value of $\theta$ , for which sin 2 $\theta = 1$ , $\theta = 1$	$0^{\circ} < \theta > 90^{\circ}$ , is	
(Ans. 45°) Q. 31. sin 20° sin 70° - cos 20° cos 70° =		
(Ans. 0)		
Q. 32. If O is the centre of the circle, PQ is a	a chord and the tangent PR at P n	nakes an angle of
50° with PQ, then $\angle$ POQ =		
	R	
	50°	



(Ans. 100°)				
Q. 34. Minimum value of $\sin^2$	$A + cosec^2 A$ is	. 0°< A < 90	)°.	
(Ans. 2)				
Q. 35. The value of $\frac{\tan 30^\circ}{\cot 60^\circ} =$	·			
(Ans. 1)				
Q. 36. The value of $\sin 45^\circ$ + $\sigma$	cos 45° is	_•		
(Ans. $\sqrt{2}$ )				
Q. 37. If $\cos \theta = \frac{1}{2}$ , $\sin \Phi = \frac{1}{2}$ ,	then the value o	of $\theta + \Phi$ is	(0 ≤ θ, Φ≤ 90°)	
(Ans. 90°)				
Q. 38. If $\sin \theta = \cos \theta$ , then $\theta$ (Ans. 45°)	=			
Q. 39. The mid point of the lin	ne segment join	ing the points A (-	2. 8) and B(-6, -4) is	з.
(Ans4, 2)		15 4		
Q. 40. If $\triangle ABC \sim \triangle DEF$ , area	of $\Delta DEF = 100c$	$cm^2$ , $\frac{AB}{DE} = \frac{1}{2}$ , then a	are of $\triangle ABC = $	
(Ans. 25 cm <sup>2</sup> ) Q. 41. A number is selected fi	rom numbers 1	to 25. The probabi	lity that it is a prim	o number is.
a) $\frac{2}{2}$	b) $\frac{1}{c}$	c)	4	d) $\frac{9}{25}$
3	6	0,	3	25
$(Ans-d \frac{9}{25})$			1.11.	
Q. 42. Two different coins are head is-	e tossed simulta	neously. The prob	ability of getting at	least one
$a)\frac{1}{4}$ $b)\frac{1}{8}$	$c)\frac{3}{2}$		$d)\frac{7}{2}$	
$(Ans c)^{\frac{3}{4}}$	4		8	
Q. 43. Two dice are thrown to	ogether The pro	hability of getting	the same number (	on both dice
is-	Somer, me bro			
a) $\frac{1}{2}$	b) $\frac{1}{2}$	$c)\frac{1}{c}$		$d)_{12}^{1}$
$(Ans c \frac{1}{6})$	3	6		12
Q. 44. The diameters of the e	nds of a frustun	n of a cone are 32 d	cm and 20 cm. If its	slant
height is 10cm, th				
a) $321\pi cm^2$	b)300πcm <sup>2</sup>	c) $260\pi$ cm <sup>2</sup>	d)250 $\pi$ cm <sup>2</sup>	
(Ans c $260\pi$ cm <sup>2</sup> )				
Q. 45. If two solid-hemispher		-	d together along the	eir bases,
then curved surface a) $4\pi r^2$	b) $6\pi r^2$	$c)3\pi r^2$	d) $8\pi r^2$	
(Ans a $4  \text{mr}^2$ )		0,000		
Q. 46. If the median of the da	ta 6, 7, x-2,x,17	,20 written in asce	ending order is 16.t	hen x=
a) 15	b) 16		c) 17	d) 18
(Ans c 17) Q. 47. One of the methods of (	dotormining mo	do io		
a) Mode = $2$ Media	-		ode = 2 Median + 3 I	Mean
c) Mode = 3 Media		,	Iode = 3 Median + 2	
(Ans c)				
Q. 48. The abscissa of the poi				ian type
cumulative freque a) mean b)	ncy curves of a median	grouped data give c) mode		three above
	mount	<i>s</i> ,		
(Ans b Median)				

Q. 49. The area of the la a) <b>r</b> <sup>2</sup>	argest triangle that o b) 2r <sup>2</sup>	can be inscribed in a c) r <sup>3</sup>	a semi-circle	of radius r is d)2 <b>r<sup>3</sup></b>	
(Ans a r <sup>2</sup> ) Q. 50. If the difference circumference	ce of the circle is-	erence and radius of	f a circle is 3'	7 cm, then the	
a)154cm (Ans b 44)	b) 44cm	c) 14cm		d) 7cm	1
Q. 51. The probability t	hat a non-leap year l	has 53 Sundays is _		(Ans $\frac{1}{7}$	)
Q. 52. The probability of (An		card from a well shu	uffled deck of	52 cards is	
Q. 53. If the arithmetic		4  is  x, then $x=$		(Ans 10)	
Q. 54. The diameter of a				f diameter 2mr	n.
0	f the wire is				
(Ans 36m)	1 1		·		
Q. 55. Volumes of two c (Ans 1:9)	ubes are in the ratio	1: 27, the ratio of th	neir surface a	areas 1s	_·
	value of the area of a ce, then its radius =_	-	ne numerical	value of its	
(Ans 2 units)	0 • • 1		• • •		
Q. 57. If the perimeter (Ans 14 cm)	of a semi-circular pro	otractor is 36cm, the	en its diamet	er 18	. <b>.</b>
Q. 58. If a square is ins	cribed in a circle , the (Ans π:2)	e ratio of the areas	of the circle	and the squar	e is
Q. 59. Find the class-m 45)	ark of the classes 10-	-25 and 35-55.		(Ans	17.5 and
Q. 60. The radii of two of find the rati	o of their curved surf		ghts are in t	he ratio 2:3 the	en
	(Ans 2:5)				

DAV PS, Rajhara Math - Basic

**Objective Type Questions For** Class X

# **Subject** : Mathematics ( Basic )

Que.01. MCQ problems :

1. Euclid's division lemma states that for two positive integers a and b, there exists unique integer q and r such that a = bq + r, where r satisfy

(a) 1 < r < b(b)  $0 < r \le b$  (c)  $0 \le r < b$ (d) 0 < r < b2. If p, q are two consecutive natural numbers, then H.C.F.(p, q) is (b) p (c) 1 (d) pq (a) q 3. If p, q are two prime numbers, then L.C.M.(p, q) is (a) 1 (b) p (c) q (d) pq 4. The decimal expansion of  $\frac{141}{120}$  will terminate after how many places of decimals? (d) will not terminate (c) 3 (a) 1 (b) 2 5. If the LCM of 4 and 18 is 36 and HCF of 4 and 18 is x, then x is equal to -(b) 2 (c) 4 (a) 3 (d) 6. If d= HCF of 48 and 72, the value of d is eqal to -(c) 72 (d) 48 (a) 48 (b) 12 7. If the zeroes of the quadratic polynomial  $ax^2 + bx + c, c \neq 0$  are equal, then

(a) c and a have opposite signs(c) c and a have the same signs (b) c and b have opposite signs (d) c and b have the same signs 8. If the product of zeroes of the polynomial  $f(x) = ax^3 - 6x^2 + 11x - 6$  is 4, then a is equal to -(a)  $\frac{-3}{2}$  (b)  $\frac{3}{2}$  (c)  $\frac{2}{3}$  (d)  $\frac{-2}{3s}$ 9. If the lines represented by 3x + 2ky = 2 and 2x + 5y + 1=0 are parallel, then the value of k is -(a)  $\frac{-5}{4}$  (b)  $\frac{2}{5}$  (c)  $\frac{15}{4}$  (d)  $\frac{3}{2}$ 10. For what value of k will the equation x + 2y + 7 = 0 and 2x + ky + 14 = 0, represents coincident lines ? (b) 4 (c) 6 (a) 2 (d) 3 11. If a pair of linear equation in two variables is inconsistent, then the lines represented by these equations are -(a) coincident (b) parallel (c) intersecting (d) None 12. Which constant should be added or subtracted to solve the quadratic equation  $9x^2 + \frac{9}{4}x - \sqrt{2} = 0$ , by the method of completing squares ? (a)  $\frac{1}{8}$  (b)  $\frac{9}{64}$  (c)  $\frac{1}{4}$  (d)  $\frac{1}{64}$ 13, The roots of the equation  $x^2 + x - p(p+1) = 0$ , Where p is a constant, are -13, The roots of the equation  $x^2 + x - p(p + 1) = 0$ , Where p is a constant, are -(a) p, p + 1 (b) -p, -p+1 (c) p, -p+1 (d) -p, -(p+1) 14. If y = 1 is a common root of the equation  $ay^2 + ay + 3 = 0$  and  $y^2 + y + b = 0$ , then a - b is equal to : (a)  $\frac{1}{2}$  (b)  $\frac{-7}{2}$  (c)  $\frac{3}{2}$  (d)  $\frac{-3}{2}$ 15. If  $ax^2 + bx + c = 0$ , has equal roots, then their sum is -(a)  $\frac{b}{a}$  (b)  $\frac{-b}{a}$  (c)  $\frac{b}{2}$  (d)  $\frac{-3}{2}$ 16. Sum of n terms of the series  $\sqrt{2} + \sqrt{8} + \sqrt{18} + \sqrt{32} + \cdots$  is (a)  $\frac{n(n+1)}{2}$  (b)  $\frac{n(n+1)}{\sqrt{2}}$  (c) 2n(n+1) (d) 1 17. In an A.P., If a = 3.5, d = 0, n = 101, then  $a_n$  will be -(a) 0 (b) 3.5 (c) 103.5 (d) 104.518. The sum of first 4 terms of the A.P. whose nth term is given by  $a_n = 2n + 1$  is (a) 6n+3 (b) 15 (c) 12 (d) 3n + 1218. The sum of first 4 terms of the A.P., whose nth term is given by  $a_n = 2n + 1$  is (a) 6n+3 (b) 15 (c) 12 (d) 21 19. If the sum of three terms in A.P. is 24, then middle term is – (a) 6 (c) 3 (b) 8 (d) 2 20. The sum of n terms of an A.P. is  $3n^2 + 5n$ , then 164 is its (a)  $24^{\text{th}}$  term (b)  $27^{\text{th}}$  term (c)  $26^{\text{th}}$  term (d)  $25^{\text{th}}$  term 21. The distance of the point P(4, 3) from the y-axis is – (b) 4 (c) 1 (a) 2 (d) 5 22. The perimeter of triangle whose vertices are (0, 4), (0, 0) and (3, 0) is – (b) 12 (c) 11 (d) 17 (a) 5 23. If the points (1, 2), (0, 0) and (a, b) are collinear, then – (b) a = 2b (c) 2a = b(a) a = b(d) a = -b24. The area of the triangle whose vertices are (5, 0), (8, 0) and (8, 4) is-(b) 12 (a) 20 (c) 6 (d) 16 25. The ratio in which the x-axis divides the line segment joining (3, 6) and (12, -3) is -(d) none of these (b) 1 : 2 (c) -2 : 1 (a) 2 :1 26. The ratio in which the y-axis divides the line segment joining (3, 6) and (12, -3) is -(a) 2 :1 (b) 1 : 4 (c) -2 : 1 (d) none of these 27. Sides of two triangles are in the ratio 4 : 9. Area of these triangles are in the ratio – (a) 2 : 3 (b) 4 : 9 (c) 81:16 (d) 16 :81 28. ABCD is a trapezium such that BC || AD and AB = 4cm. If the diagonals AC and BD intersect at O such that  $\frac{AO}{OC} = \frac{DO}{OB} = \frac{1}{2}$ , then DC = (a) 7 cm (b) 8 cm(c) 9cm (d) 6 cm 29. The perimeter of two similar triangles ABC and PQR are respectively 60cm and 36cm. If PQ = 9cm, then AB =(d) 24cm (a) 6cm (b) 10cm (c) 15cm 30. If angle between two radii of a circle is  $130^{\circ}$ , the angle between the tangents at the ends of radii is – (b) **50**<sup>0</sup> (c) **70**<sup>0</sup> (a)**90**<sup>0</sup> (d) **40<sup>0</sup>** 

31. The distance between two parallel tangents of a circle of radius 3cm is -(a) 6cm (b) 3cm (c) 4.5cm (d)12cm 32. If four sides of quadrilateral ABCD are tangential to a circle, then (a) AC+AD = BD + CD(b) AB + CD = BC + AD(c) AB + CD = AC + BC(d) AC + AD = BC + DB33. If  $\sin\theta = \frac{1}{2}$ , then the value of  $\sin\theta(\sin\theta - \csc\theta)$  is -(c)  $\frac{\sqrt{3}}{2}$ (a) 🛓 (d)  $\frac{-\sqrt{3}}{2}$ (b)  $\frac{-3}{4}$ 34. If  $\sec\theta - \tan\theta = \alpha$  then  $\sec\theta + \tan\theta$  is equal to – (b)  $\frac{1}{\alpha}$  (c)  $\alpha$  (d) none of these 35.  $cot10^{\circ}cot75^{\circ}cot80^{\circ}cot15^{\circ}$  is equal to – (b) 0 (d) cannot be determined (a) 1 (c)-1 36. The value of  $(1 + cot\theta - cosec\theta)(1 + tan\theta + sec\theta)$  is – (c) 4 (b) 2 (d) 0(a) 1 37. If the height of a vertical pole is  $\sqrt{3}$  times the length of its shadow on the ground, then the angle of the elevation of the sun at that time is – (c) **45**<sup>0</sup> (d) **75**° (b) **60**<sup>0</sup> (a) **30**<sup>0</sup> 38. If the area of a circle is 100 sq.cm., the area of a square inscribed in this circle is -(a)  $\frac{200}{\pi}$  sq. cm (b)  $100\pi$  sq.cm (c)  $\frac{50}{\pi}$  cm<sup>2</sup> (d)  $50 \pi$  sq. cm 39. If the area of the circle is 154 sq. cm , then the perimeter is – (b) 22cm (a) 11cm (c) 44cm (d) 55cm 40. Area of the largest triangle that can be inscribed in a semi circle of radius r units is -(b)  $\frac{1}{2}r^2unit^2$  (c)  $2r^2unit^2$  (d) r unit (a)  $r^2 unit^2$ 41. The volume of a hemisphere is  $2425\frac{1}{2}$  cu.cm., then its curved surface area is-(c) 893 sq.cm. (d) 1000 sq.cm. (a) 693 sq cm (b) 793sq cm 42. The number of spherical bullets of radii 1 mm each that can be made out of a cylindrical solid of radius 4 cm and height 6 cm are – (a) 72000 (b) 64000 (c) 96000 (d) none of these 43. Construction of cumulative frequency table is required to determine – (a) Mean (b) Median (c) Mode (d) none of these 44. If mode of 2,5,x, 6, 9, 3, 4, 6, 5, 5 is 5 then x is equal to – (c) 3 (d) none of these (a) 5 (b) 6 45.*If*  $\sum f_i = 17$ ,  $\sum f_i x_i = 4p + 63$  and mean = 7, then p is equal to -(a) 15 (b) 12 (c) 14 (d) 13 46. A single letter is selected at random from the word "PROBABILITY". The probability that it is a vowel is (a)  $\frac{3}{11}$  (b)  $\frac{4}{11}$  (c)  $\frac{2}{11}$  (d)  $\frac{0}{11}$ 47. A number is selected at random from 1 to 30. Probability that it is a prime number is – (a)  $\frac{2}{3}$  (b)  $\frac{1}{6}$  (c)  $\frac{1}{3}$  (d)  $\frac{11}{30}$ Que.02. Fill in the blanks : A line intersecting a circle in two distinct points is called a ..... 1. 2. A circle have ......tangents. 3. A line meets a circle in one point is called a .....to the circle. If the total number of observations in n, then the class whose cumulative frequency is greater than  $\frac{\pi}{2}$  and 4. nearest to it is called the ..... 5. The class with maximum frequency is called ..... The median of a statistical data is the value of .....observation 6. If the data is arranged in ascending or descending order. The graph drawn using the lower class limits and their corresponding cumulative frequency is called a 7. The graph drawn using the upper class limits and their corresponding cumulative frequency is called a 8.

Que. 03. True/False Type problems :

- 1. "The product of three consecutive positive integers is divisible by **6**<sup>n</sup> " Is this statement true or false ? Justify your answer.
- 2. If all the zeroes of cubic polynomial are negative, then all the coefficients and the constant term of the polynomial have the same sign.
- 3. Is the following statement true ? Why ? "Two quadrilaterals are similar, if their corresponding angles are equal".
- 4. The value of  $\sin\theta + \cos\theta$  is always greater than 1.
- 5.  $\tan\theta$  increases faster than  $\sin\theta$  as  $\theta$  increases.

#### \*ANSWERS\*

## Que.01.

1. ( c) 2. ( c )	3.(d)	4.	(c)	5. (b)	6. (d)	7. (c)	8. (b)	9. (c)	10. (b) 11. (b)
12. (b) 13. (c) 14.(a)	15 (b)	16. (c)	17. (b)	18. (b)	19. (b)	20. (b)	21. (b)	22. (b)	
23. (c) 24. (c ) 25. (a)	26. (b)	27. (d)	28. (b)	29. (c)	30. (b)	31. (a)	32.(b)	33. (b)	
34. (b) 35. (c ) 36. (b)	37.(b)	38.(a)	39. (c)	40. (a)	41. (a)	42. (c)	)43.(b)	44.(a)	
45.(c) 46. (b) 47. (c)									

Que. 02.

- 1. Secant
- 2. Infinitely many
- 3. Tangent
- 4. Median class
- 5. Modal class
- 6. Middle most
- 7. More than ogive
- 8. Less than ogive

Que. 03.

- 1. True
- 2. True
- 3. False
- 4. False
- 5. True

## DAV PS, Rajhara Maths-

<b>Objective Type Questions For</b>	Class X	Subject	: Mathematics ( Standard )
Que.01. MCQ problems :			
2. Euclid's division lemma states that for	two positive intege	rs a and b, there	e exists unique integer q and r such that
a = bq + r, where r satisfy			
(b) $1 < r < b$	(	b) <b>0</b> < <i>r</i> ≤ <i>b</i>	
(c) $0 \le r < b$	(d) $0 < r$	< b	
2. If p, q are two consecutive natural numbers, t	then H.C.F.( p, q) i	s	
(a) q (b) p	(c) 1 (	d) pq	
3. If p, q are two prime numbers, then L.C.M.(	p, q ) is		
· · · · · · · · · · · · · · · · · · ·			

(a) 1 (b) p (c) q (d) pq

4. The decimal expansion of  $\frac{141}{120}$  will terminate after how many places of decimals ? (c) 3 (d) will not terminate (b) 2 (a) 1 5.  $(-1)^n + (-1)^{8n} = 0$ , where n is : (a) any positive integer (b) any odd natural number (a) any positive integer(b) any odd natural num(c) any even natural number(d) any negative integer 6. The least number which divides by all the numbers from 1 to 10 (both inclusive) is (b) 100 (c) 504 (d) 2520 (a) 10 7. If the zeroes of the quadratic polynomial  $ax^2 + bx + c, c \neq 0$  are equal, then (a) c and a have opposite signs
(b) c and b have opposite signs
(c) c and a have the same signs
(d) c and b have the same signs 8. If the sum of zeroes of  $p(x) = (k^2 - 14)x^2 - 2x - 4$  is 1, then find k : (b)  $\pm 4$  (c)  $\pm 2$  (d) 9 (a)  $\pm \sqrt{18}$ 9. If the lines represented by 3x + 2ky = 2 and 2x + 5y + 1 = 0 are parallel, then the value of k is -(a) $\frac{-5}{4}$  (b) $\frac{2}{5}$  (c) $\frac{15}{4}$  (d) $\frac{3}{2}$ 10.For what value of k will the equation x + 2y + 7 = 0 and 2x + ky + 14 = 0, represents coincident lines ? (a) 2 (b) 4 (c) 6 (d) 311. If a pair of linear equation in two variables is inconsistent, then the lines represented by these equations are -(a) coincident (b) parallel (c) intersecting (d) None 12. Which constant should be added or subtracted to solve the quadratic equation  $9x^2 + \frac{9}{4}x - \sqrt{2} = 0$ , by the method of completing squares ? (a)  $\frac{1}{8}$  (b)  $\frac{9}{64}$  (c)  $\frac{1}{4}$  (d)  $\frac{1}{64}$ 13, The roots of the equation  $x^2 + x - p(p+1) = 0$ , Where p is a constant, are -(b) p, p + 1 (b) -p, -p+1 (c) p is a constant, are -(b) p, p + 1 (b) -p, -p+1 (c) p is a constant, are -(c) p, -p+1 (d) -p, -(p+1) 14. If y = 1 is a common root of the equation  $ay^2 + ay + 3 = 0$  and  $y^2 + y + b = 0$ , then a - b is equal to : (a)  $\frac{1}{2}$  (b)  $\frac{-7}{2}$  (c)  $\frac{3}{2}$  (d)  $\frac{-3}{2}$ 15. If sin $\theta$  and cos $\theta$  are the roots of the equation  $ax^2 + bx + c = 0$ , then  $b^2$  is Equal to  $a^2 - 2ac$  (b)  $a^2 + 2ac$  (c)  $a^2 - ac$  (d)  $a^2 + ac$ (a) 16. Sum of n terms of the series  $\sqrt{2} + \sqrt{8} + \sqrt{18} + \sqrt{32} + \cdots \dots$  is (a)  $\frac{n(n+1)}{2}$  (b)  $\frac{n(n+1)}{\sqrt{2}}$  (c) 2n(n+1) (d) 1 17. In an A.P.,If a = 3.5, d = 0, n = 101, then  $a_n$  will be – (a) 0 (b) 3.5 (c) 103.5 (d) 104.5 18. The sum of first 4 terms of the A.P., whose nth term is given by  $a_n = 2n + 1$  is (a) 6n+3 (b) 15 (c) 12 (d) 21 19. If the sum of three terms in A.P. is 24, then middle term is – (a) 6 (b) 8 (c) 3 (d) 2 20. The sum of n terms of an A.P. is  $3n^2 + 5n$ , then 164 is its (a)  $24^{\text{th}}$  term (b)  $27^{\text{th}}$  term (c)  $26^{\text{th}}$  term (d)  $25^{\text{th}}$  term 21. The distance of the point P(4, 3) from the x-axis is – (b) 3 (c) 1 (a) 2 (d) 5 22. The perimeter of triangle whose vertices are (0, 4), (0, 0) and (3, 0) is – (a) 5 (b) 12 (c) 11 (d) 17 23. If the points (1, 2), (0, 0) and (a, b) are collinear, then – (a) a = b (b) a = 2b (c) 2a = b(d) a = -b24. The area of the triangle whose vertices are (5, 0), (8, 0) and (8, 4) is-(b) 12 (c) 6 (a) 20 (d) 16 25. The ratio in which the x-axis divides the line segment joining (3, 6) and (12, -3) is -(b) 1 : 2 (c) -2 : 1 (d) none of these (a) 2 :1 26. The ratio in which the y-axis divides the line segment joining (3, 6) and (12, -3) is -(a) 2 :1 (b) 1 : 4 (c) -2 : 1 (d) none of these

27. Sides of two triangles are in the ratio 4:9. Area of these triangles are in the ratio – (a) 2:3(b) 4:9(c) 81:16 (d) 16:81 28. ABCD is a trapezium such that BC || AD and AB = 4cm. If the diagonals AC and BD intersect at O such that  $=\frac{DO}{OB}=\frac{1}{2}$ , then DC = (a) 7cm (b) 8cm (c) 9cm (d) 6 cm 29. The perimeter of two similar triangles ABC and PQR are respectively 60cm and 36cm. If PQ = 9cm, then AB =(a) 6cm (b) 10cm (c) 15cm (d) 24cm 30. If angle between two radii of a circle is  $130^{\circ}$ , the angle between the tangents at the ends of radii is – (a)<mark>90</mark>0 (b) <mark>50</mark>0 (c) **70<sup>0</sup>** (d) **40<sup>0</sup>** 31. The distance between two parallel tangents of a circle of radius 3cm is -(a) 6cm (b) 3cm (c) 4.5cm (d)12cm 32. If four sides of quadrilateral ABCD are tangential to a circle, then (a) AC+AD = BD + CD (b) AB + CD = BC + AD(c) AB + CD = AC + BC(d) AC + AD = BC + DB33. If  $\sin\theta = \frac{1}{2}$ , then the value of  $\sin\theta(\sin\theta - \csc\theta)$  is -(c)  $\frac{\sqrt{3}}{2}$ (d)  $\frac{-\sqrt{3}}{2}$ (b)  $\frac{-3}{4}$ 34. If  $\sec\theta - \tan\theta = \alpha$  then  $\sec\theta + \tan\theta$  is equal to – (b)  $\frac{1}{\alpha}$ (c)  $\alpha$  (d) none of these 35. cot10°cot75°cot80°cot15° is equal to -(d) cannot be determined (a) 1 (b) 0 (c)-1 36. The value of  $(1 + cot\theta - cosec\theta)(1 + tan\theta + sec\theta)$  is – (b) 2 (d) 0 (a) 1 (c) 437. If the height of a vertical pole is  $\sqrt{3}$  times the length of its shadow on the ground, then the angle of the elevation of the sun at that time is -(a) **30**<sup>0</sup> (b) **60**0 (c) 45<sup>0</sup> (d) **75**<sup>0</sup> 38. If the area of a circle is 100 sq.cm., the area of a square inscribed in this circle is -(a)  $\frac{200}{\pi}$  sq. cm (b)  $100\pi$  sq.cm (c)  $\frac{50}{\pi}$  cm<sup>2</sup> (d) 50  $\pi$  sq. cm 39. If the area of the circle is 154 sq. cm , then the perimeter is -(a) 11cm (b) 22cm (c) 44cm (d) 55cm 40. Area of the largest triangle that can be inscribed in a semi circle of radius r units is -(b)  $\frac{1}{2}r^2unit^2$  (c)  $2r^2unit^2$  (d) r unit (a)  $r^2 unit^2$ 41. The volume of a hemisphere is  $2425\frac{1}{2}$  cu.cm., then its curved surface area is-(b) 793sq cm (c) 893 sq.cm. (d) 1000 sq.cm. (a) 693 sq cm 42. The number of spherical bullets of radii 1 mm each that can be made out of a cylindrical solid of radius 4 cm and height 6 cm are – (a) 72000 (b) 64000 (c) 96000 (d) none of these 43. Construction of cumulative frequency table is required to determine – (a) Mean (b) Median (c) Mode (d) none of these 44. If mode of 2,5,x, 6, 9, 3, 4, 6, 5, 5 is 5 then x is equal to – (c) 3 (d) none of these (a) 5 (b) 6  $45.If \sum f_i = 17, \sum f_i x_i = 4p + 63$  and mean = 7, then p is equal to -(c) 14 (b) 12 (a) 15 (d) 13 46. A single letter is selected at random from the word "PROBABILITY". The probability that it is a vowel is (a)  $\frac{3}{11}$  (b)  $\frac{4}{11}$  (c)  $\frac{2}{11}$  (d)  $\frac{0}{11}$ 47. A number is selected at random from 1 to 30. Probability that it is a prime number is – (a)  $\frac{2}{3}$  (b)  $\frac{1}{6}$  (c)  $\frac{1}{3}$  (d)  $\frac{11}{30}$ Que.02. Fill in the blanks :

9. A line intersecting a circle in two distinct points is called a .....

10. A circle have .....tangents.

11. A line meets a circle in one point is called a .....to the circle.

12. If the total number of observations in n, then the class whose cumulative frequency is greater than  $\frac{n}{2}$  and nearest to it is called the .....

nearest to it is called the .....

- 13. The class with maximum frequency is called .....
- 14. The median of a statistical data is the value of .....observation
- If the data is arranged in ascending or descending order.
- 15. The graph drawn using the lower class limits and their corresponding cumulative frequency is called a
- 16. The graph drawn using the upper class limits and their corresponding cumulative frequency is called a

#### Que. 03. True/False Type problems :

- 6. "The product of three consecutive positive integers is divisible by 6<sup>n</sup> " Is this statement true or false ? Justify your answer.
- 7. If all the zeroes of cubic polynomial are negative, then all the coefficients and the constant term of the polynomial have the same sign.
- 8. Is the following statement true ? Why? "Two quadrilaterals are similar, if their corresponding angles are equal".
- 9. The value of  $\sin\theta + \cos\theta$  is always greater than 1.
- 10.  $\tan\theta$  increases faster than  $\sin\theta$  as  $\theta$  increases.

#### \*ANSWERS\*

#### Que.01.

1. (c) 2. (c)	3.(d)	4.	(c) 5. (	b) 6. (d) 7.	(c) 8. (b) 9. (c)	10. (b) 11. (b)
12. (b) 13. (c) 14.(a) (b) 27. (d) 28. (b)	15 (b) 29. (c)	· · /	· · ·			23. (c) 24. (c) 25. (a) 26. 37.(b) 38.(a) 39. (c) 40.
(a) $41.$ (a) $42.$ (c)	43.(b)	. ,	45.(c) 46.	. , . ,		

Que. 02.

- 9. Secant
- 10. Infinitely many
- 11. Tangent
- 12. Median class
- 13. Modal class
- 14. Middle most
- 15. More than ogive
- 16. Less than ogive

Que. 03.

- 6. True
- 7. True
- 8. False
- 9. False
- 10. True

## DAV PS, Chirimiri

#### **Real Numbers**

- 1. The decimal expansion of  $\frac{63}{72 \times 175}$  is
- a) Terminating b) Non terminating c) Non terminating and repeating d) an irrational number.2. If the HCF and LCM of two numbers are 4 and 9696, then the product of the two numbers is
  - a) 9696 b) 24242 c) 38784 d) 4848.
- 3. For some integer q, every odd integers is of the form a) q b) q + 1 c) 2q d) none of these.

4. The HCF of two consecutive even numbers is a) 1 b) 2	c) 4 d) 8.					
5. Any one of the numbers a, a+2, a+4, for any positive integer a, is a	multiple of		3 c) 5	d) 7.		
6. The least number that is divisible by all the numbers from 1 to 100 Polynomia		b) 100 c)	504 d) 252	0.		
7. The value of k for which (-4) is a zero of the polynomial $x^2 - x$		a) 3 b)	9 c) 6	d) -1.		
8. If $\alpha$ and $\beta$ are zeroes of the 3 polynomials $f(x) = x^2 + 5x + 8$ ,		is a)		,	d)	
none of these.		,	,	,	,	
9. The number of polynomials having zeroes as -2 and 5 is a) 1	, , ,	d) more that				
10. If the zeroes of the quadratic polynomial $x^2 + kx + k, k \neq 0$ ,	a) cannot both	be positive	b) can	not both l	be	
negative c) are always equal d) are always unequal.	$\mathbf{b} (1 \circ \mathbf{c})$	4) 2				
<ul> <li>11. A quadratic polynomial can have at most zeroes. a) 0</li> <li>12. A quadratic polynomial whose sum and product of zeroes are -3 at</li> </ul>	b) 1 c) 2 ad 2 is a) $r^2$	-3r+2	h) $r^2$	+3r+2	(c)	
$x^2 + 2x - 3$ d) $x^2 + 2x + 3$ .	u 215 u) x	0.4 1 2	0) 4			
Pairs of Linear Equ	ations					
-						
13. The value of c for which the pairs of equations $cx - y = 2$ and 6. b) -3 c) -12 d) no value.					a) 3	
14. The pair of equations $x + 2y + 5 = 0$ and $-3x - 6y + 1 = 0$ h solutions c) no solution d) one solution.	ave a) infi	nitely many s	solutions	b) uniq	ue	
	b) -1 c)1	d) 2.				
16. If the pairs of equations $2x + 3y = 5$ and $5x + \frac{15}{2}y = k$ represented by the pairs of equations $2x + 3y = 5$ and $5x + \frac{15}{2}y = k$ .	nts two coinciden	t lines, then t	he value of l	k is	a)	
$-5  ext{ b})\frac{-25}{2}  ext{ c})\frac{25}{2}  ext{ d})\frac{-5}{2}$ .						
17. The pairs of equations $y = 0$ and $y = -7$ has a) one solution d) no solutions.	b) two solution	ns c)	infinitely ma	any soluti	ions	
Quadratic Equations						
Quadratic Equat	ons					
		b) $k > 4$	c) $k \ge$	× 4	d)	
18. If the equation $x^2 + 4x + k = 0$ has real and distinct roots then		b) <i>k</i> > 4	c) <i>k</i> ≥	<u>2</u> 4	d)	
18. If the equation $x^2 + 4x + k = 0$ has real and distinct roots then $k \le 4$ .	a) <i>k</i> < 4		c) <b>k</b> ≥ a) 6	e 4 b) 3	d) c)	
18. If the equation $x^2 + 4x + k = 0$ has real and distinct roots then	a) <i>k</i> < 4				,	
<ul> <li>18. If the equation x<sup>2</sup> + 4x + k = 0 has real and distinct roots then k ≤ 4.</li> <li>19. If x = 1 is a common roots of the equations ax<sup>2</sup> + ax + 3 = 0 an -3 d) <sup>7</sup>/<sub>2</sub>.</li> <li>20. If the equations ax<sup>2</sup> + 2x + a = 0 has two distinct roots if a) a</li> </ul>	a) $k < 4$ $d x^{2} + x + b = 0$ $= \pm 1$ b) $a = 0$	) then ab = 0 c)	a) 6 a = 0, 1	b) 3 d) a = -	c) 1, 0.	
<ul> <li>18. If the equation x<sup>2</sup> + 4x + k = 0 has real and distinct roots then k ≤ 4.</li> <li>19. If x = 1 is a common roots of the equations ax<sup>2</sup> + ax + 3 = 0 an -3 d) <sup>7</sup>/<sub>2</sub>.</li> <li>20. If the equations ax<sup>2</sup> + 2x + a = 0 has two distinct roots if a) a</li> </ul>	a) $k < 4$ $d x^{2} + x + b = 0$ $= \pm 1$ b) $a = 0$	) then ab = 0 c)	a) 6 a = 0, 1	b) 3 d) a = -	c) 1, 0.	
<ul> <li>18. If the equation x<sup>2</sup> + 4x + k = 0 has real and distinct roots then k ≤ 4.</li> <li>19. If x = 1 is a common roots of the equations ax<sup>2</sup> + ax + 3 = 0 an -3 d) <sup>7</sup>/<sub>2</sub>.</li> <li>20. If the equations ax<sup>2</sup> + 2x + a = 0 has two distinct roots if a) a</li> <li>21. If α and β are the roots of the quadratic equation 4x<sup>2</sup> + 3x + 7 =</li> <li>22. Values of k for which the quadratic equation 2x<sup>2</sup> - kx + k = 0 has</li> </ul>	a) $k < 4$ $dx^2 + x + b = 0$ $= \pm 1$ b) $a = 0$ $= 0$ , then $\frac{1}{\alpha} + \frac{1}{\beta}$	then $ab =$ () (c) (a) $\frac{7}{3}$ (c)	a) 6 a = 0, 1 ) $\frac{-7}{3}$ c) $\frac{3}{7}$	b) 3 d) a = -	c) 1, 0.	
<ul> <li>18. If the equation x<sup>2</sup> + 4x + k = 0 has real and distinct roots then k ≤ 4.</li> <li>19. If x = 1 is a common roots of the equations ax<sup>2</sup> + ax + 3 = 0 an -3 d) <sup>7</sup>/<sub>2</sub>.</li> <li>20. If the equations ax<sup>2</sup> + 2x + a = 0 has two distinct roots if a) a</li> <li>21. If a and β are the roots of the quadratic equation 4x<sup>2</sup> + 3x + 7</li> <li>22. Values of k for which the quadratic equation 2x<sup>2</sup> - kx + k = 0 has d) 0, 8.</li> </ul>	a) $k < 4$ $dx^2 + x + b = 0$ $= \pm 1$ b) $a = 0$ $= 0$ , then $\frac{1}{\alpha} + \frac{1}{\beta}$ as equal roots is	then $ab =$ () (c) (a) $\frac{7}{3}$ (c)	a) 6 a = 0, 1 ) $\frac{-7}{3}$ c) $\frac{3}{7}$	b) 3 d) $a = -d) \frac{-3}{7}$ .	c) 1, 0.	
<ul> <li>18. If the equation x<sup>2</sup> + 4x + k = 0 has real and distinct roots then k ≤ 4.</li> <li>19. If x = 1 is a common roots of the equations ax<sup>2</sup> + ax + 3 = 0 an -3 d) <sup>7</sup>/<sub>2</sub>.</li> <li>20. If the equations ax<sup>2</sup> + 2x + a = 0 has two distinct roots if a) a</li> <li>21. If a and β are the roots of the quadratic equation 4x<sup>2</sup> + 3x + 7</li> <li>22. Values of k for which the quadratic equation 2x<sup>2</sup> - kx + k = 0 H d) 0, 8.</li> </ul>	a) $k < 4$ $dx^2 + x + b = 0$ $= \pm 1$ b) $a = 0$ $= 0, then \frac{1}{\alpha} + \frac{1}{\beta}$ as equal roots is ression	then $ab =$ () (c) (a) $\frac{7}{3}$ (c) (a) (c) (c) (c) (c) (c) (c) (c) (c)	a) 6 a = 0, 1 ) $\frac{-7}{3}$ c) $\frac{3}{7}$	b) 3 d) $a = -d) \frac{-3}{7}$ .	c) 1, 0.	
<ul> <li>18. If the equation x<sup>2</sup> + 4x + k = 0 has real and distinct roots then k ≤ 4.</li> <li>19. If x = 1 is a common roots of the equations ax<sup>2</sup> + ax + 3 = 0 an -3 d) <sup>7</sup>/<sub>2</sub>.</li> <li>20. If the equations ax<sup>2</sup> + 2x + a = 0 has two distinct roots if a) a</li> <li>21. If a and β are the roots of the quadratic equation 4x<sup>2</sup> + 3x + 7</li> <li>22. Values of k for which the quadratic equation 2x<sup>2</sup> - kx + k = 0 has d) 0, 8.</li> </ul>	a) $k < 4$ $dx^2 + x + b = 0$ $= \pm 1$ b) $a = 0$ $= 0, then \frac{1}{\alpha} + \frac{1}{\beta}$ as equal roots is ression	then $ab =$ () (c) (a) $\frac{7}{3}$ (c) (a) (c) (c) (c) (c) (c) (c) (c) (c)	a) 6 a = 0, 1 ) $\frac{-7}{3}$ c) $\frac{3}{7}$	b) 3 d) $a = -d) \frac{-3}{7}$ .	c) 1, 0.	
<ul> <li>18. If the equation x<sup>2</sup> + 4x + k = 0 has real and distinct roots then k ≤ 4.</li> <li>19. If x = 1 is a common roots of the equations ax<sup>2</sup> + ax + 3 = 0 an -3 d) <sup>7</sup>/<sub>2</sub>.</li> <li>20. If the equations ax<sup>2</sup> + 2x + a = 0 has two distinct roots if a) a</li> <li>21. If a and β are the roots of the quadratic equation 4x<sup>2</sup> + 3x + 7</li> <li>22. Values of k for which the quadratic equation 2x<sup>2</sup> - kx + k = 0 H d) 0, 8.</li> <li>Arithmetic Prog</li> <li>23. The 10<sup>th</sup> term of the AP 5, 8, 11, 14, Is a)32 b) 35</li> <li>24. In an AP a = -7.2, d = 3.6, an = 7.2 then n is a) 1</li> <li>25. In an AP, if d = -4, n = 7, an = 4 then a is a) 6 b) 7 c) 20</li> </ul>	a) $k < 4$ $d x^2 + x + b = 0$ $= \pm 1$ b) $a = 0$ $= 0, then \frac{1}{a} + \frac{1}{\beta}$ as equal roots is ression c) 38, d) 185 b) 3 c) 4 d) 28	then $ab =$ () (c) (a) $\frac{7}{3}$ (c) (a) (c) (b) (c)	a) 6 a = 0, 1 ) $\frac{-7}{3}$ c) $\frac{3}{7}$	b) 3 d) $a = -d) \frac{-3}{7}$ .	c) 1, 0.	
<ul> <li>18. If the equation x<sup>2</sup> + 4x + k = 0 has real and distinct roots then k ≤ 4.</li> <li>19. If x = 1 is a common roots of the equations ax<sup>2</sup> + ax + 3 = 0 an -3 d) <sup>7</sup>/<sub>2</sub>.</li> <li>20. If the equations ax<sup>2</sup> + 2x + a = 0 has two distinct roots if a) a</li> <li>21. If a and β are the roots of the quadratic equation 4x<sup>2</sup> + 3x + 7</li> <li>22. Values of k for which the quadratic equation 2x<sup>2</sup> - kx + k = 0 H d) 0, 8.</li> <li>Arithmetic Prog</li> <li>23. The 10<sup>th</sup> term of the AP 5, 8, 11, 14, Is a)32 b) 35</li> <li>24. In an AP a = -7.2, d = 3.6, an = 7.2 then n is a) 1</li> <li>25. In an AP, if d = -4, n = 7, an = 4 then a is a) 6 b) 7 c) 20</li> <li>26. Which term of the AP 21, 42, 63, 84, Is 210. a) 9<sup>th</sup></li> </ul>	a) $k < 4$ $d x^2 + x + b = 0$ $= \pm 1$ b) $a = 0$ $= 0, then \frac{1}{\alpha} + \frac{1}{\beta}$ as equal roots is ression c) 38, d) 185 b) 3 c) 4 d) 28 b) 10 <sup>th</sup> c) 11 <sup>th</sup>	) then $ab =$ () (c) (a) $\frac{7}{3}$ (a) (a) (0) only (b) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	a) 6 a = 0, 1 $() \frac{-7}{3} c) \frac{3}{7}$ b) 4	b) 3 d) $a = -d) \frac{-3}{7}$ .	c) 1, 0.	
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- 35. If the angle between two radii of a circle is  $130^{0}$ , then find the angle between the tangents at the ends of the radii.
- 36. If the radii of two concentric circles are 4cm and 5cm, then find the length of each chord of one circle which is tangent to other circle.

#### Statistics

- 37. Construction of cumulative frequency table is useful in determining the a) mean b) median c) moded) all above
- 38. Write the empirical relationship between mean, median and mode.

#### Probability

c) $\frac{18}{23}$  d)  $\frac{8}{7}$ 

b)1.004

- 39. Which of the following can be the probability of an event? A)-0.04
- 40. A card is drawn from a well-shuffled deck of 52 cards. What is the probability of getting a face card?
- 41. If an event can not occur, then what is its probability?
- 42. If a die id thrown, what is the probability of getting an odd number less than 3?
- 43. If the probability of occurrence of an event is 0.063, what is the probability of its non-occurrence?

#### Triangle

44. What will be the length of sides of a rhombus, if its diagonals are 16cm and 12 cm?

45. If 
$$\triangle ABC \sim \triangle PQR$$
 with  $\frac{BC}{QR} = \frac{1}{3}$ , then find  $\frac{ar(\triangle PQR)}{ar(\triangle ABC)}$ 

46. If the areas of two similar triangle are 9  $cm^2$  and 16 cm<sup>2</sup>, find the ratio of their corresponding sides.

47. Two poles of height 6m and 11 m stands vertically on a plane, if the distance between their feet is 12m, find the distance between their tops.

#### Trigonometry

- 48. If  $\cos A = \frac{4}{5}$ , then find the value of  $\tan A$ .
- 49. If  $\cos 9A = \sin A$ ,  $A < 90^{\circ}$ , then find the value of  $\tan 5A$ .
- 50. Find the value of  $\sin 45^{\circ} + \cos 45^{\circ}$ .

## DAV PS, BISHRAMPUR

1. HCF of smallest prime number and smallest composite number is								
a) 1	b) 2	c) 3	d) 4					
2. If the graph of the polynomial does not intersect x-axis, then number of zeroes of the polynomial is:								
a) 1	b) 2	c) 3	d) zero					
3. If a polynomial of d	egree 5 is divided by a po	olynomial of degree	3, then the degree	of the quotient is:				
a) less than 2	b) equal to 2	c)	equal to 4	d) more than 4				
4. $(\alpha - \beta), \alpha, (\alpha + \beta)$ are zeroes of the polynomial $2x^3 - 16x^2 + 15x - 2$ , value of $\alpha$ is								
a) 8	b) 0	c) 🔒	d)					
5. The graph of a quad	dratic polynomial is a							
a) Straight line	b) circle	c) spiral	d) pa	arabola				
6. The pair of linear ed	quations 2x + 7y = k, kx +		ely many solutions	if:				
a) k = 3	b) k = 6	c) k = 9	d) k = 19					
	-		-	epresents parallel lines is				
a) -2	b) 2	c) -3	d) 4					
8. If 1 is root of equations $ax^2 + ax + 3 = 0$ and $x^2 + x + b = 0$ then ab equals:								
a) -2	b) 3	c) -3	d) 4					
9. If k, 2k – 1 and 2k + 1are three consecutive terms of an A.P., then find the value k is:								
a) 2	b) 3	c) -3	d) 5					
	) odd natural numbers is	:						
a) 100	b) 300	c) 400	d) 420					
11. If ∆ABC~∆ <i>DEF</i> a	and BC = 3cm, EF = 4cm,	$ar(\Delta ABC) = 54 \text{ cm}^2$	then find $ar(\Delta DEF)$	).				
12. find the value of a	12. find the value of a for which point $P(a/3, 2)$ is the mid-point of the line segment joining the points $Q(-5, 4)$ and $R(-1, 0)$ .							
13. Find the distance of the point P(x, y) from origin.								

- 14. What is next term of an A.P.  $\sqrt{8}$ ,  $\sqrt{18}$ ,  $\sqrt{32}$ , ...?
- 15. After how many places  $\frac{23}{2^4 \times 5^3}$  terminate?
- 16. Has the rational number  $\frac{441}{2^2 \times 5^7 \times 7^2}$  terminating or non-terminating decimal expansion?
- 17. If  $\alpha$  and  $\beta$  are of p(x) = 2x<sup>2</sup> x 6, then find the value of  $\frac{1}{\alpha} + \frac{1}{\beta}$ .
- 18. If (x + a) is a zero of the polynomial  $2x^2 + 3ax + 1$ , find the value of a.
- 19. If x = a, y = b is the solution of the pair of equations x y = 2 and x + y = 4 find the values of a and b.
- 20. Write equation of line parallel to i) x-axis ii) y-axis
- 21. In figure, DEIIBC. If AD = 2cm, AB = 5cm and AE = 1.5 cm. Find EC.



- 22. Find the value of k for which the equation  $x^2 + 5kx + 16 = 0$  has real and equal roots.
- $px^2 2\sqrt{5}px + 15 = 0$ , has two equal roots, then find the value of k. 23. If quadratic equation
- 24. Find eleventh term from the last of the AP : 27, 23, 19, ..., -65.
- 25. The graph of y = p(x) is shown in the figure below. How many zeroes does p(x) have?



26. The point P(1,2) divides the join of A(-2, 1) and B(7,4) in the ratio

a) 1:2 b) 2:1 c) 3:1 d)1:3

- 27. If the tangents PA and PB from a point P to a circle with centre O are inclined to each other at an angle of 80°, then ∠POA is
  - a) 50° b) 60° c) 70° d)80°
- 28. The probability of guessing the correct answer to a certain question in a test is  $\frac{x}{12}$ . If the probability of

guessing the incorrect answer is  $\frac{2}{3}$ , then x is equal to

a) 2 b) 3 c) 4 d) 6

29. If  $\operatorname{cosec} \theta - \cot \theta = \frac{1}{2}$ , then  $\cos \theta = \underline{\qquad}$ a)  $\frac{5}{3}$  b)  $\frac{3}{5}$  c)  $\frac{-3}{5}$  d)  $\frac{-5}{3}$ 

30. Value of tan5° x tan5° x tan45° x tan80° x tan85° is

31. If A and B are acute angles such that sin A = cos B, then A + B is

a) 60° b) 30° c) 90° d) 120°

32. The altitude of an equilateral triangle having the length of its side 10cm is

a)  $5\sqrt{2}$  cm b)  $5\sqrt{3}$  cm c)  $6\sqrt{2}$  cm d)  $6\sqrt{3}$  cm

33. The distance between two parallel tangents to a circle	of radius 7 cm is
a) 49 cm b) 7 cm c) 14 cm	d) 28 cm
34. The length of the tangent drawn from a point 5 cm awa	-
a) 2 cm b) 4 cm c) 6 cm	d) 8 cm
35. The point on X- axis equidistant from points A(2,4) and	-
a) (5, 0) b) (-5,0) c) (0,0) d)none of	these
36. If two tangents inclined at an angle of 60° are drawn to each tangent is	o a circle of radius 5 cm, then the length of
a) 12 cm b) 10 cm c) 15 cm d)	18 cm
37. 3 tan $\theta$ = 5, then $\frac{3\sin\theta - 5\cos\theta}{3\sin\theta + 5\cos\theta}$ is equal to	
a) $\frac{3}{5}$ b) $\frac{3}{5}$ c)1 d)0	
38. Area swept by the minute hand of a clock of length 15	cm in 20 minutes is
a) $60\pi$ b) $65\pi$ c) $70\pi$ d) $75\pi$	
39. If mode of a data is 45, mean is 27 then the median is	
40. If $\theta$ increases from 0 to $1/2$ , then the value of $\cos \theta$	
41. The class in which mode lies is called	-
42. The sum of the probabilities of all the elementary even	
43. If three points $(x_1, y_{1,})$ , $(x_2, y_{2,})$ , $(x_3, y_{3,})$ are such the	$at x_1(y_2-y_3) + x_2(y_3-y_1) + x_3(y_1-y_2) = 0 \text{ then}$
these points are	
44. The probability of getting a face card from a pack of car	rds is
45. The distance of a point (x,y) from origin is	O and all a should the athen Find the surface
46. Rahul made a toy in which he placed 4 cubes of edge 10 area of the resulting cuboid.	o chi one above the other. Find the surface
47. Find the area of the quadrant of a circle whose circumf	
48. Find the probability of getting a sum 9 if two dice a	-
49. A wire is bent in the form of a circle of radius 28 cm . It length of the side of the square.	is rebent in the form of a square . Find the
50. For a grouped data, which measure of central tendency the 'less than ogive' and of the 'more than ogive'?	is the abscissa of the point of intersection of
DAV PS. I	PANDAVPARA
OBJECTIVE TYPE QUEST	
Objective THE QUEST	1011:2013-20
CLASS –X	SUBJECT-MATHEMATICS
1. Which of the following are the root of the quadratic equ	ation, $x^2-9x+20=0$ by factorization ?
(a) 3, 4 (b) 4, 5 (c) 5, 6 (d) 6, 7	

2. if  $\alpha$ ,  $\beta$  are the root of the equation  $x^2+5x+5=0$ , then equation whose roots are  $\alpha + 1$  and  $\beta + 1$  is

(a)  $x^2 + 5x - 5 = 0$  (b)  $x^2 + 3x + 5 = 0$  (c)  $x^2 + 3x + 1 = 0$  (d) none of this

3. which of the following equation has two distinct real root?

(a) 
$$2x^2 - 3\sqrt{2x} + \frac{9}{4} = 0$$
 (b)  $x^2 + x - 5 = 0$  (c)  $x^2 + 3x + 2\sqrt{2} = 0$  (d)  $5x^2 - 3x + 1 = 0$   
4.  $(x^2 + 1)^2 - x^2 = 0$  has

(a) four real root (b) two real root (c) no real root (d) one real root

5. If ,  $\beta$  are root of  $x^2 + 5x + a = 0$  and  $2\alpha + 5\beta = -1$ , then a is equal to \_\_\_\_\_\_.

(a) -24 (b) +24 (c) 0

(d) none of this

6.  $\alpha$ ,  $\beta$  are roots of the equation  $(a + 1)x^{2} + (2a + 3)x + (3a + 4) = 0$ . If  $\alpha$ .  $\beta = 2$ , then  $\alpha + \beta =$ . (b) +1 (a) -1 (c) 0 (d) None of this 7.An AP consists of 31 terms. If its 16<sup>th</sup> term is m, then sum of all the terms of this AP is (d) 52 m (a) 16 m (b) 47 m (c) 31 m 8. Two Aps have the same common differences. The first term of one of these is -1 and that of the other is -8 then the difference between their 4<sup>th</sup> term is (a) -1 (b) - 8(c) 7 (d) -9 9. ABC and BDE are the two equilateral triangles such that D is mid-point of BC. Ratio of the areas of triangle ABC and BDE is (b) 1:4 (a) 2 · 1 (c) 1:2 (d) 4:110. ABL  $\sim$  PQR. Are of. ABC = 81 cm<sup>2</sup>, PQR = 121 cm<sup>2</sup>. If AD = 9 cm, PM = ? a) 10 cm b) 11 cm c) 12 cm d) None of these 11. If sin x + cosec x = 2 then  $sin^{19}$  x +  $cosec^{20}$ x =? (a)  $2^{19}$  (b)  $2^{20}$  (c)  $2^{39}$  (d) 2 12. If  $\tan A + \cot A = 4$ , then  $\tan^4 A + \cot^4 A =$ (a) 194 (b) 196 (c) 0 (d)  $\infty$ 13. tan A = (a)  $\frac{\cos A}{\sqrt{1-\cos^2 A}}$  (b)  $\frac{\sec A}{\sqrt{1-\sec^2 A}}$  (c)  $\frac{\sin A}{\sqrt{1-\sin^2 A}}$  (d)  $\frac{1}{\sqrt{1-\sin^2 A}}$ 14. The pair of linear equation 2x + 3y = 5 and 4x + 6y = 10 is a) consistent b) inconsistent c) dependent consistent d) none of these 15. The pair of equations x - a, y - b graphically represents lines which are a) parallel b) intersecting at b, a c) coincide d) intersecting at a, b 16. The numbers of polynomials having zeroes as -2 and 5 isb) 2 c) 3 d) more than 3 a) 1 17. If p(x) = ax2 + bx + c and a+c = b then one of the zero is – a) b/a b) c/a c) –c/a d) -b/a18. The ratio between LCM and HCF of 5, 15, 20 is – a) 9.1 b) 4.3 c) 11.1 d) 12:1 19. If A = 2n + 13, B = n+7, where n is natural number, then HCF of A and B isa) 1 b) 2 c) 3 d) 4 20. If cosec  $A - \cot A = 4/5$  then cosec A = ?b) 59/40 a) 47/40 c) 51/40 d) 41/40 21. Zeros of a polynomial can be determined graphically.No. of zeroes of a polynomial is equal to no.of points where the graph of polynomial ----(c) intersects y-axis or intersect x- axis (d) none of these. (a) intersects y-axis (b) intersect x- axis 22. The perimeter of a triangle with vertices (0,4), (0.0) and (3,0) is \_\_\_\_\_\_.

23. The centroid of a triangle whose vertices (0,0), (3,0) and (0,4) is \_\_\_\_\_

24. The next term of the A.P. $\sqrt{18}$ , $\sqrt{50}$ , $\sqrt{25}$ . State true or false that A man is known t up then probability if he reports it is six is	o speak truth 3 ou						
			die and a number other than six come	es			
	3/4.						
26.State true or false that the decimal expan	usion of the ration	al number $\frac{14587}{1250}$ wi	Il terminate after one decimal place.	•			
27. If the product of the Zeroes of $x^2 - 3kx + 2k^2 - 1$ is 7, then value of k are and							
28. State true or false if $x^6 + 1$ is divided by x-1, then the remainder is 2.							
29 All the black face cards are removed fr	om a pack of 52 p	playing cards.The rema	ining cards are well shuffled	Į			
and then a card is drawn at random. Find the		-					
a)face card.	b)red card	l. c	black card. d)king.				
30.Cards numbered from 11 to 60 are kept	in box. If a card is	s drawn at random from	the box, find the probabilit	y			
that the number on the drawn card is							
, , ,		,	d)a prime member less than 20.				
31.All the red face cards are removed from a pack of 52 playing cards. A card is drawn at random from the remaining							
and a free weater filler the me Time the second	1.:1:4 414 41 4						
cards, after reshuffling them. Find the proba	-		C .				
a)of red colour.	b)a queen.	c)an ace.	d)a face card.				
	b)a queen. ADE = $90$	c)an ace. BAC = 50 ,then a <del>ng</del> le	d)a face card.				
a)of red colour.	b)a queen.	c)an ace.	d)a face card.				
a)of red colour.	b)a queen. ADE = $90$	c)an ace. BAC = 50 ,then a <del>ng</del> le	d)a face card.				
a)of red colour.	b)a queen. ADE = $90$	c)an ace. BAC = 50 ,then a <del>ng</del> le	d)a face card. e BCA -				
a)of red colour. 32.In the given figure, $\underline{AD} = \underline{AE}$ and $\angle$	b)a queen. ADE = $90$	c)an ace. BAC = 50 ,then a <del>ng</del> le	d)a face card. e BCA -				
a)of red colour.	b)a queen. ADE = $90$	c)an ace. BAC - 50 ,then angle EC	d)a face card. BCA - A D E				

33. state true or false

Two different dice are tossed together. SO, the probability that the product of the two numbers at the top of the dice is 1/9.

34. Match the column:

2x + 3y =40 6x +5y = 10		COINCIDENT LINES	
2X + 3Y = 4 6X+ 9Y =50	( )	INTERSECTING LINES	
2X +3Y = 10 4X + 6Y=20		PARALLEL LINES	

(b) $1 - B, 2 - A, 3 - C$	
(C) 1-B,2-C, 3-A	(C) 1-C, 2-A, 3- B

34. AP, AQ, AND DC are the tangents of the circle . AB=5 CM , AC= 6CM , BC = 4CM , THEN THE LENGTH OF AP (IN CM) is







36. The diameter of a wheel is 1.26 m . The distance travelled in 500 revolution is

(a) 2670 m	(b)	) 2880 m	(c) 1980 m (d) 1596 m	
37. Area of the trangle form	med by (1, -4) and	d (3, -2) (-3, 16) is		
38. The value of sir	$1^2 30^\circ - \cos^2 30^\circ$ is			
(a) -1/2	(b) <mark>√3</mark> /2	(c) 3/2	(d)2/3	
39. If 3 $\cot \theta = 2$ , the	en the value of ta	an $ heta$		
(a) 2/3	(b) 3/2		(c) 3/ <del>√13</del>	(d) 2/ <del>√13</del>
40. If $\triangle ABC$ is right ar	igled at C, then th	the value of $\cos(A + B)$	)	
(a) 0	(b) 1		(C) <sup>1</sup> / <sub>2</sub>	(d) √3/2