

By. Er. Dharmendra Sir

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# **DPM CLASSES**

6th to 10th (Math's & Science), 11th & 12th (Physics, Chemistry, Math's)

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**EXAM - PAPER (CBSE/NCERT)**

## **PRACTICE SET -3**

**SESSION -2024-25**

**CLASS - 10<sup>th</sup>**

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Time : 3:50hr

Exam paper (maths) - 3

mm!

Q.1. choose the correct option and write:

(i) Write the standard form of a quadratic equation:

(a)  $ax^2 + bx + c = 0$

(b)  $ax^2 + bx + c$

(c)  $ax^2 + bx + c = 0$

(d)  $ax^2 + bx + c^2 = 0$

(ii) 11<sup>th</sup> term of the A.P.  $-3, -\frac{1}{2}, 2, \dots$  is :

(a) 28

(b) 22

(c) -38

(d)  $-48\frac{1}{2}$

(iii) Write the formula of slant height of a cone:

(a)  $l = r^2 + h^2$

(b)  $l^2 = \sqrt{r^2 + h^2}$

(c)  $\sqrt{l} = r^2 + h^2$

(d)  $l = \sqrt{r^2 + h^2}$

(iv) HCF of (6, 20) is :

(a) 6

(b) 20

(c) 2

(d) 120

(v) How many zeroes will be in cubic polynomial?

(a) only one

(b) 0

(c) 2

(d) 3

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(vi) Write the condition for unique solutions of pair of Equation  $a_1x + b_1y + c_1 = 0$ , and  $a_2x + b_2y + c_2 = 0$

$$(a) \frac{a_1}{a_2} = \frac{b_1}{b_2}$$

$$(b) \frac{a_1}{a_2} \neq \frac{b_1}{b_2}$$

$$(c) \frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$$

$$(d) \frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$$

Q.2. Fill in the blanks :

(i) The distance of a point from the X-axis is called ..... (abscissa/ordinate)

(ii) The probability of a sure event is ..... (1/0)

(iii)  $\sqrt{2}$  is a ..... number (rational/irrational)

(iv) Sridharacharya derived a formula, now known as the .....

(v) The 10th term of A.P. 5, 10, 15 ..... is .....

(vi) All ..... triangles are similar

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Q.3. match the correct column:

- |                                     |            |
|-------------------------------------|------------|
| (i) $9 \sec^2 A - 9 \tan^2 A$       | (a) $\log$ |
| (ii) Distance b/w (0, 4) and (3, 0) | (b) 1      |
| (iii) Volume of a cuboid            | (c) $a^2$  |
| (iv) Area of a square               | (d) 9      |
| (v) $\sin^2 A + \cos^2 A$           | (e) 5      |
| (vi) $\tan(90^\circ - A)$           | (f) $a^3$  |
|                                     | $9 \cot A$ |

Q.4. Write the answer in one word/sentence.

- (i) What is the probability of getting a number 8 in a single throw of a die?
- (ii) Write the class mark of the class 20-40
- (iii) Write the formula of discriminant for quadratic equation  $ax^2 + bx + c = 0$
- (iv) Write the formula to find the sum of the first  $n$  terms of an AP.
- (v) Write the definition of the angle of elevation.
- (vi) What is called the common point of the tangent and the circle?

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Q.5. Write true/false in the following :

(i) A tangent is the secant.

(ii) The distance b/w point  $(7,1)$  and  $(0,0)$  is  $5\sqrt{2}$ .

(iii) The volume of a cone is half of the volume of cylinder if the radius and height are equal of the cone and cylinder.

(iv) The corresponding sides of two similar triangles are in the proportion.

(v) The ratio of the areas of two similar triangles is equal to the ratio of their corresponding sides.

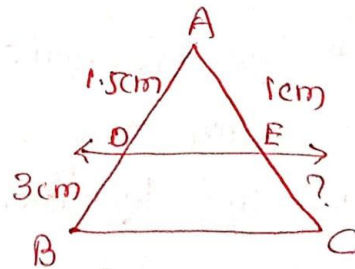
(vi) The line of sight is the line drawn from the eye of an observer to the point in the object.

Q.6. Write the statement of Basic proportionality theorem  
or

If in  $\triangle ABC$ ,  $DE \parallel BC$ , then find  $EC$ .

$AE = 1 \text{ cm}$ ,  $AD = 1.5 \text{ cm}$

$DB = 3 \text{ cm}$ .



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Q.7. Find the distance between points  $P(4,6)$  and  $Q(6,8)$  or

Find the midpoints  $(a,b)$  and  $(-a,-b)$

Q.8. If  $\tan A = \frac{4}{3}$ , then find the value of  $\sec A$  and  $\cos A$ . or

Find the value of  $\frac{\sin 18^\circ}{\cos 72^\circ}$

Q.9. Two players Sangeeta and Reshma, play a tennis match. It is known that the probability of Sangeeta winning the match is 0.62. What is the probability of Reshma winning the match. or

A bag contains 3 red balls and 5 black balls. A ball is drawn at random from the bag. What is the probability that the ball drawn is red.

Q.10. Express 140 as a product of its prime factors. or

Given the HCF  $(306, 657) = 9$ , Find LCM  $(306, 657)$

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Q.11. A die is thrown once. Find the probability of getting a prime number.

or

A box contains 5 red, 8 white and 4 green marbles. One marble is taken out of the box at random.

Find the probability of getting a white marble.

Q.12. Show that  $3\sqrt{2}$  is irrational.

or

Find the HCF of 17, 23 and 29.

Q.13. Find the zeroes of  $4u^2 + 8u$

or

Find a quadratic polynomial as the sum of zeroes = -1 and product =  $\sqrt{5}$

Q.14. Find the ratio  $\frac{a_1}{a_2}$ ,  $\frac{b_1}{b_2}$  and  $\frac{c_1}{c_2}$

$$3x + 2y = 5$$

$$2x - 8y = 7$$

or

Solve the pair of linear equations:

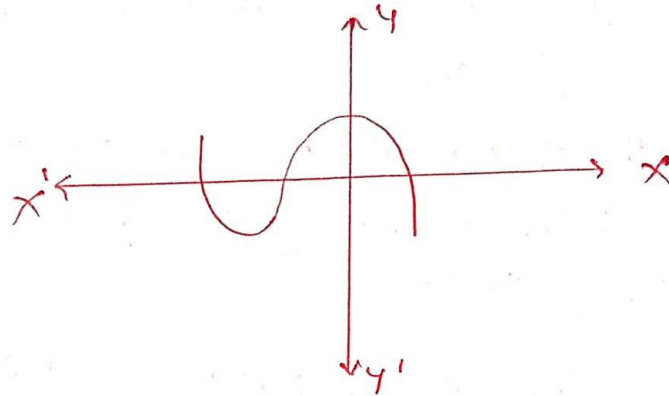
$$x + y = 14, \quad x - y = 4.$$

6.

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Q. 15. Find the number of zeroes :



or

Find the sum of zeroes of polynomial  $x^2 - 3$ .Q. 16. Check whether  $x^2 - 2x = -2(3-x)$  is a quadratic equation  
orFind the discriminant of the quadratic equation  
 $2x^2 - 4x + 3 = 0$ .Q. 17. Find the 10<sup>th</sup> term of the AP: 2, 7, 12, ...  
or

Check whether 0, -4, -8, -12, ... in A.P.

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Q.18. Prove that the lengths of tangents drawn from an external point to a circle are equal.

or

The length of a tangent from a point A at distance 5 cm from the centre of the circle is 4 cm. Find the radius of circle.

Q.19. Find the area of a sector of a circle with radius 6 cm if angle of the sector is  $60^\circ$

or

The length of the minute hand of a clock is 14 cm. Find the area swept by the minute hand in 5 minutes.

Q.20. A tower stands vertically on the ground. From a point on the ground, which is 15 m away from the foot of the tower, the angle of elevation of the top of the tower is found to be  $60^\circ$ . Find the height of the tower.

or

A tree breaks due to storm and the broken part bends so that the top of the tree touches the ground making an angle  $30^\circ$  with it. The distance between the foot of the tree to the point where the top touches the ground is 8 m. Find the height of the tree.

8.

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Q.21. From a solid cylinder whose height is 2.4 cm and diameter 1.4 cm, a conical cavity of the same height and same diameter is hollowed out. Find the total surface area of the remaining solid.  
or

A solid is in the shape of a cone standing on a hemisphere with both their radii being equal to 1 cm and the height of the cone is equal to its radius. Find the volume of the solid in terms of  $\pi$ .

Q.22. The following table gives the literacy rate (in %) of 35 cities. Find the mean literacy rate.

Literacy rate (in %)	45-55	55-65	65-75	75-85	85-95
No. of cities	3	10	11	8	3

or

The following data gives the information on the observed lifetime (in hr) of 225 electrical components. Determine the modal lifetimes of the components.

Lifetimes (in hr)	0-20	20-40	40-60	60-80	80-100
Frequency	20	45	57	65	38

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Q. 23. The difference between two numbers is 26 and one number is three times the other. Find them.

or

Solve the pair of linear equations

$$3x - 5y - 4 = 0$$

$$9x = 2y + 7$$

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