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CLASS 10 MATH BASIC MATH TEST PAPER 3

Class 10 - Mathematics

| Time All | owed: 1 hour and 15 minutes | Maximum Marks | s: 30 |
|---|---|---|-------|
| | Sec | tion A | |
| 1. | If $y = 1$ is one of the solutions of the quadratic equation | on $py^2 + py + 3 = 0$, then the value of p is: | [1] |
| | a) -3 | b) 2 | |
| | c) $-\frac{3}{2}$ | d) -2 | |
| 2. | If the equation $9x^2 + 6kx + 4 = 0$ has equal roots then | k = ? | [1] |
| | a) 2 or 0 | b) -2 or 0 | |
| | c) 2 or -2 | d) 0 only | |
| 3. | The discriminant of the quadratic equation $2x^2 + x - 1$ | . = 0 is: | [1] |
| | a) 9 | b) -9 | |
| | c) -7 | d) 7 | |
| 4. | It is given that $\triangle ABC \sim \triangle DEF$. If $\angle A = 55^{\circ}, \angle E = 45^{\circ}$, then $\angle C$ is: | | [1] |
| | a) 80° | b) 55° | |
| | c) ₄₅ ° | d) 900 | |
| 5. | The perimeters of two similar triangles ABC and PQI | R are 56 cm and 48 cm respectively. $\frac{PQ}{AB}$ is equal to | [1] |
| | a) $\frac{7}{6}$ | b) $\frac{8}{7}$ | |
| | c) $\frac{6}{7}$ | d) $\frac{7}{8}$ | |
| 6. | D and E are respectively the points on the sides AB as | nd AC of a triangle ABC such that $AD = 3 \text{ cm}$, $BD = 5 \text{ cm}$, | [1] |
| | BC =12.8 cm and DE BC. Then length of DE (in cm) is | | |
| | a) 19.2 cm | b) 7.6 cm | |
| | c) 2.5 cm | d) 4.8 cm | |
| 7. | The radii of the base of a cylinder and a cone are in the ratio 3 :4. If they have their heights in the ratio 2 : 3, the ratio between their volumes is | | [1] |
| | a) 9:8 | b) 3 : 4 | |
| | c) 8 : 9 | d) 4:3 | |
| 8. A solid sphere is cut into two hemispheres. The rati | | of the surface areas of sphere to that of two hemispheres | [1] |
| | taken together, is: | | |
| | a) 3 : 2 | b) 1 : 1 | |
| | c) 2 : 3 | d) 1:4 | |

9. A solid is in the shape of a cone standing on a hemisphere with both their radii being equal to 1cm and the height [1]

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of the cone is equal to its radius. The volume of the solid is

| a) πcm^3 | b) $4\pi cm^3$ |
|---------------|-----------------|
| c) $2\picm^3$ | d) $3\pi cm^3$ |

10. **Assertion (A):** The equation $x^2 + 3x + 1 = (x - 2)^2$ is a quadratic equation.

Reason (R): Any equation of the form $ax^2 + bx + c = 0$ where $a \neq 0$, is called a quadratic equation.

a) Both A and R are true and R is the correct
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

11. **Assertion (A):** Sum and product of roots of $2x^2 - 3x + 5 = 0$ are $\frac{3}{2}$ and $\frac{5}{2}$ respectively. [1] **Reason (R):** If α and β are the roots of $ax^2 + bx + c = 0$, $a \neq 0$, then sum of roots $= \alpha + \beta = -\frac{b}{a}$ and product of roots $= \alpha\beta = \frac{c}{a}$

- a) Both A and R are true and R is the correct explanation of A.
- c) A is true but R is false.

12. **Assertion (A):** If in a \triangle ABC, a line DE || BC, intersects AB in D and AC in E, then $\frac{AB}{AD} = \frac{AC}{AE}$ [1] **Reason (R):** If a line is drawn parallel to one side of a triangle intersecting the other two sides, then the other two sides are divided in the same ratio.

- a) Both A and R are true and R is the correct explanation of A.b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.

d) A is false but R is true.

b) Both A and R are true but R is not the

correct explanation of A.

d) A is false but R is true.

13. **Assertion (A):** D and E are points on the sides AB and AC respectively of a \triangle ABC such that DE||BC then the **[1]** value of x is 11, when AD = 4cm, DB = (x - 4)cm, AE = 8cm and EC = (3x - 19)cm. **Reason (R):** If a line divides any two sides of a triangle in the same ratio then it is parallel to the third side.



- a) Both A and R are true and R is the correctb) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

Assertion (A): Two identical solid cubes of side 5 cm are joined end to end. The total surface area of the [1] resulting cuboid is 300 cm².

Reason (R): Total surface area of a cuboid is 2(lb + bh + lh)

a) Both A and R are true and R is the correct
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

15. Assertion (A): In the given figure, a sphere is inscribed in a cylinder. The surface area of the sphere is not equal [1]

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[1]

to the curved surface area of the cylinder.



Reason (R): Surface area of sphere is $4\pi r^2$

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

Section B

- 16. Solve for x: $6x^2 2x + \frac{1}{6} = 0$
- 17. In a \triangle ABC, D and E are points on the sides AB and AC respectively such that DE || BC. If $\frac{AD}{DB} = \frac{3}{4}$ and AC = [2] 15 cm, find AE.
- 18. A boiler is in the form of a cylinder 2 m long with hemispherical ends each of 2 metre diameter. Find the volume **[2]** of the boiler.

Section C

- 19. The sum of the squares of two consecutive positive even numbers is 452. Find the numbers.
- 20. In the figure, if $\triangle ABC \sim \triangle DEF$ and their sides are of lengths (in cm) as marked along them, then find the [3] lengths of the sides of each triangle.



21. A toy is in the form of a cylinder with hemispherical ends. If the whole length of the toy is 90 cm and its diameter is 42 cm, find the cost of painting the toy at the rate of 70 paise per sq cm.

[2]

[3]