



Answers

Time 3 hours

Mathematics Mock Test X 2013

MM 90

Section A 1 Mark Each

1. If a and b are the roots of $x^2 - px + q = 0$, then $a^2 + b^2$
(A) $p^2 + q^2$ (B) $p^2 + 2q$ (C) $p^2 - q^2$ (D) $p^2 - 2q$

or

$x^2 - rx + 1 = 0$ has real roots and distinct root, then r does not lie between
(A) 1 and 2 (B) -1 and 1 (C) -2 and 2 (D) -1 and 2

2. Which term of the A.P. 24, 21, 18, 15... is the first negative term?
(A) 8th (B) 10th (C) 12th (D) 6th
3. To divide a line segment AB in the ratio 4:7, a ray AX is drawn first such that $\angle BAX$ is an acute angle and then points A_1, A_2, A_3, \dots are located at equal distances on the ray AX and the point B is joined to
(A) A_{12} (B) A_{11} (C) A_{10} (D) A_9
4. The radii of two concentric circles are 20 cm and 15 cm respectively. Then the area of ring enclosed by these is
(A) 320 cm^2 (B) 550 cm^2 (C) 340 cm^2 (D) 500 cm^2

or

Perimeter of a circle is equal that to a square. Then ratio of their areas is
(A) 14:11 (B) 7:22 (C) 22:7 (D) 7:11

5. To draw a pair of tangents to a circle which are inclined at an angle of 35° , it is required to draw tangents at the end points of those two radii of the side, the angle between which is
(A) 105° (B) 70° (C) 140° (D) 145°
6. The probability for a randomly selected number out of 1, 2, 3, 4 ...25 to be a prime number is
(A) 0.8 (B) 0.92 (C) 0.4 (D) 0.36

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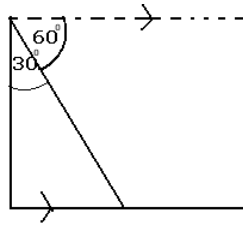
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7. The angle of depression in the following figure
(A) 30° (B) 60° (C) 45° (D) 90°



8. Two tangents making an angle of 120° with each other are drawn to a circle of radius 6 cm, then the length of each tangent is equal to
(A) $\sqrt{3}$ cm (B) $6\sqrt{3}$ cm (C) $\sqrt{3}$ cm (D) $2\sqrt{3}$ cm

Section B 2 Marks Each

9. $\frac{a^2}{2}, \frac{b^2}{2}$

or

$$\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{3}$$

10. $-13, -8, -3, \dots$

11. $y = 14$ cm

12. No

13. $(3, -4)$

14. Scalene triangle. The sides are $\sqrt{65}, \sqrt{145}, \sqrt{170}$

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Section B 3 Marks Each

15. 100

16. or

2 cm

18. 3411.1 cm^2

19. $2 : 9, \left(\frac{24}{11}, \frac{-4}{11}\right)$

20. (2, 1)

21. $\frac{25}{36}, \frac{11}{36}$

22. $-a, -b$

23. $\frac{3}{13}, \frac{8}{13}$

24. $a = 7, d = \pm 4$, AP is 3, 7, 11

or

$$d = \frac{-7}{10}, a = \frac{35}{4}, a_{21} = \frac{-21}{4}$$

Section D 4 Marks Each

25. $294 + 481.25 - 346.5 = 428.75 \text{ cm}^2$

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26. $900\sqrt{3} - 26400/7$
 $= 1557 - 3771.43$
 $= 2214.43 \text{ cm}^2$

28. Rs.10per metre

29. 300850

Or

16, 5

30. 10 cm, 12 cm.

31. $9/13$

32. 7964.4 m

33. 180 m.

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