1. If \( x = \frac{7 - \sqrt{45}}{2} \), find the value of \( x^3 + \frac{1}{x^3} \).
   (A) 47  
   (B) 298  
   (C) 322  
   (D) 428  
   (E) None of these

2. From the given figure, find out the values of \( x \) and \( y \).

3. What is the remainder when \( x + x^9 + x^{25} + x^{49} + x^{81} \) is divided by \( x^3 - x \).
   (A) 5x^2  
   (B) 3x^2  
   (C) 4x  
   (D) 5x  
   (E) None of these

4. The sides of a quadrilateral taken in order are 26 cm, 27 cm, 7 cm and 24 cm. The angle between the last two sides is a right angle. Find the area of quadrilateral.
   (A) 291.85 cm\(^2\)  
   (B) 375.85 cm\(^2\)  
   (C) 84 cm\(^2\)  
   (D) 600 \(\sqrt{15}\) cm\(^2\)  
   (E) None of these

5. The area of the region bounded by \( 2x + y = 6 \), \( 2x - y + 2 = 0 \) and \( x - \) axis is:
   (A) 4 sq. units  
   (B) 6 sq. units  
   (C) 8 sq. units  
   (D) 2 sq. units  
   (E) None of these

6. If \( \cos \theta = \frac{1}{\sqrt{2}} \), then \( \frac{2\cos^2\theta + 3\tan^2\theta}{4\cot^2\theta - \sin^2\theta} \) is equal to
   (A) \( \frac{8}{7} \)  
   (B) \( \frac{8}{9} \)  
   (C) \( \frac{9}{8} \)  
   (D) \( \frac{7}{8} \)  
   (E) None of these

The Actual Question Paper Contains 50 Questions. The Duration of the Test Paper is 60 Minutes.
7. An aeroplane leaves an airport and flies due north at a speed of 1000 km/h. At same time, another plane flies due west at a speed of 1200 km/h from the same place. The approximate distance between the two planes after 1.5 hours will be:
(A) 2400 km  (B) 2520 km  
(C) 2343 km  (D) 2434 km  
(E) None of these

8. If O is the centre of the circle, then measure of ∠QPM in the following figure is:

   ![Diagram](image)

(A) 65°  (B) 50°  
(C) 40°  (D) 72°  
(E) None of these

9. Three years ago, the mean age of Harison’s family of 5 members was 17. A baby having been born, the average age of his family remains same today. The present age of the baby is:
(A) 1 year  (B) 1.5 years  
(C) 2.5 years  (D) 2 years  
(E) None of these

10. The volume of the shaded region in the following figure is:

   ![Diagram](image)

(A) \( \frac{3}{8} \pi \text{ cm}^3 \)  
(B) \( \frac{3}{4} \pi \text{ cm}^3 \)  
(C) \( \frac{3}{2} \pi \text{ cm}^3 \)  
(D) \( \frac{3}{12} \pi \text{ cm}^3 \)  
(E) None of these

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**ANSWERS**

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