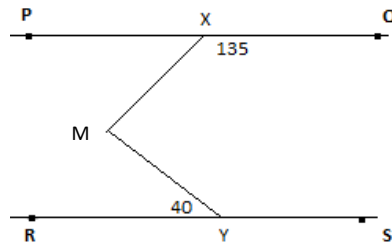


## MATHEMATICS

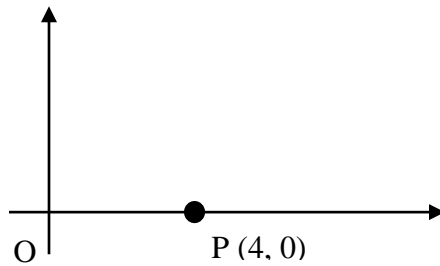
01. The maximum number of real roots for  $ax^7 + bx^5 + c = 0$ , where a, b, c are non-zero real numbers, is  
 A. 5                                      B. 7                                      C. 2                                      D. 0
02. If the distance of a point from x- axis is 5 and from y- axis is 3 and the point is in 2<sup>nd</sup> quadrant, the co-ordinates of the point are  
 A. (-5, 3)                                      B. (-5, -3)                                      C. (-3, 5)                                      D. (-5, -3)
03. The value of  $\sqrt{-\sqrt{3} + \sqrt{(4 + \sqrt{3})^2}}$  is  
 A. 4                                      B. 9                                      C. 2                                      D. 0
04. The value of  $\cos 1^\circ \cos 2^\circ \cos 3^\circ \dots \dots \dots \cos 179^\circ \cos 180^\circ$  is  
 A. 1                                      B. 0                                      C. -1                                      D. None

05. If in the figure,  $PQ \parallel RS$ ,  $\angle MXQ = 135^\circ$  and  $\angle MYR = 40^\circ$ . Then the value of  $\angle XMY$  is



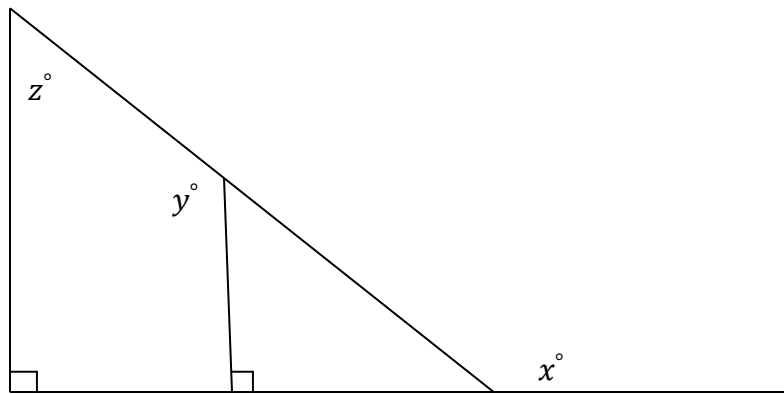
- A.  $45^\circ$                                       B.  $40^\circ$                                       C.  $85^\circ$                                       D.  $135^\circ$
06. In a frequency distribution, the mid-value of a class is 15 and the width of the class interval is 4. The lower limit of the class is  
 A. 10                                      B. 12                                      C. 13                                      D. 14
07. The sum of two numbers is 128 and one number is 3 times the other. The difference between the numbers is  
 A. 48                                      B. 32                                      C. 96                                      D. 64
08. The first and last term of an A.P are 1 and 11 respectively. If the sum of its terms is 36, then the number of terms in the A.P is  
 A. 5                                      B. 6                                      C. 7                                      D. 8

09. In a rectangular co-ordinate system, If point R (not shown) lies on the positive y-axis and the area of triangle ORP is 12 sq units, Then the y-coordinate of R is



- A. 3                                      B. 6                                      C. 9                                      D.12

10.



In the above figure, If  $z = 50^\circ$ , Then  $x + y =$

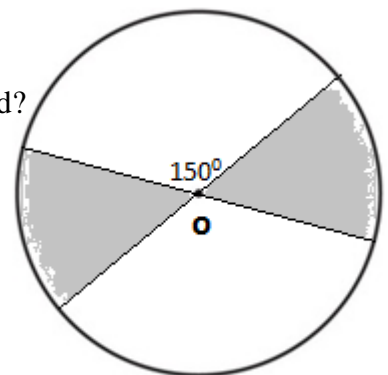
- A.  $230^\circ$                                       B.  $250^\circ$                                       C.  $260^\circ$                                       D.  $270^\circ$

11. The probability is  $\frac{1}{2}$  that a certain coin will turn up heads on any given toss. If the coin is to be tossed three times ,what is the probability that on at least one of the tosses, the coin will turn up tails?

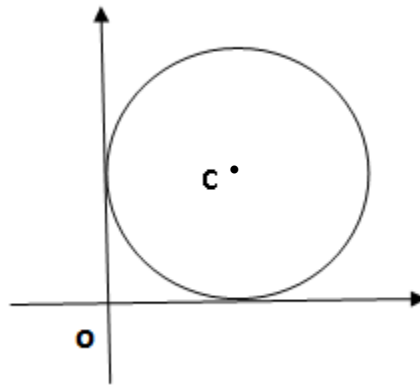
- A.  $\frac{1}{8}$                                       B.  $\frac{1}{2}$                                       C.  $\frac{3}{4}$                                       D.  $\frac{7}{8}$

12. If O is centre of the circle, what fraction of the circular region is shaded?

- A.  $\frac{1}{12}$                                       B.  $\frac{1}{9}$                                       C.  $\frac{1}{6}$                                       D.  $\frac{1}{4}$



13. The circle with centre C is tangent to both axes. If distance from O to C is equal to 'k', what is the radius of the circle in terms of 'k'?



- A.  $k$                       B.  $\frac{k}{\sqrt{2}}$                       C.  $\frac{k}{\sqrt{3}}$                       D.  $\frac{k}{2}$
14. If the altitude of the Sun is at  $60^\circ$  then the height of vertical tower that will cast a shadow of length 30 m is
- A.  $30\sqrt{3}$ m                      B. 15m                      C.  $\frac{30}{\sqrt{3}}$ m                      D.  $15\sqrt{2}$ m
15. An object thrown directly upward is at a height of  $h$  feet after  $t$  seconds, where
- $h = -16(t - 3)^2 + 150$ . At what time it reaches the maximum height of 150 feet?
- A. 6 secs                      B. 3 secs                      C. 10 secs                      D. none of these