

1. if one of the zeroes of the quadratic polynomial  $x^2 + 3x + k$  is 2, then the value of  $k$  is
  - (a) 10
  - (b) -10
  - (c) -7
  - (d) -2
2. the total number of factor of a prime number is
  - (a) 1
  - (b) 0
  - (c) 2
  - (d) 3
3. the quadratic polynomial, the sum of whose zeros is -5 and their product is 6, is
  - (a)  $x^2 + 5x + 6$
  - (b)  $x^2 - 5x + 6$
  - (c)  $x^2 - 5x - 6$
  - (d)  $-x^2 + 5x + 6$
4. the value of  $k$  for which the system of equations  $x + y - 4 = 0$  and  $2x + ky = 3$ 
  - (a) -2
  - (b)  $\neq 2$
  - (c) 3
  - (d) 2
5. the HCF and the LCM of 12, 21, 15 respectively are
  - (a) 3, 140

(b) 12,420

(c) 3,420

(d) 420,3

6. the value of  $x$  for which  $2x$ ,  $(x + 10)$  and  $(3x + 2)$  are the three consecutive terms of an AP,is

(a) 6

(b)  $-6$

(c) 18

(d)  $-18$

7. the first term of an AP is  $P$  and the common difference is  $q$ ,then its  $10^{th}$  term is

(a)  $q + 9p$

(b)  $p - 9q$

(c)  $p + 9q$

(d)  $2p + 9q$

8. the distance between the points  $(a \cos \theta + b \sin \theta, 0)$  and  $(0, a \sin \theta - b \cos \theta)$ ,is

(a)  $a^2 + b^2$

(b)  $a^2 - b^2$

(c)  $\sqrt{a^2 + b^2}$

(d)  $\sqrt{a^2 - b^2}$

9. if the point  $p(k, 0)$  divides the line segment joining the points  $(2, -2)$  and  $B(-7, 4)$  in the ratio 1:2, then the value of  $k$  is

(a) 1

(b) 2

(c)  $-2$

(d)  $-1$

10. the value of  $p$ , for which the points  $a(3, 1)$ ,  $B(5, p)$  and  $c(7, -5)$  are collinear, is

(a)  $-2$

(b)  $2$

(c)  $-1$

(d)  $1$

11. in FIG.1,  $\triangle ABC$  is circumscribing a circle, the length of  $BC$  is  $1\text{ cm}$ .

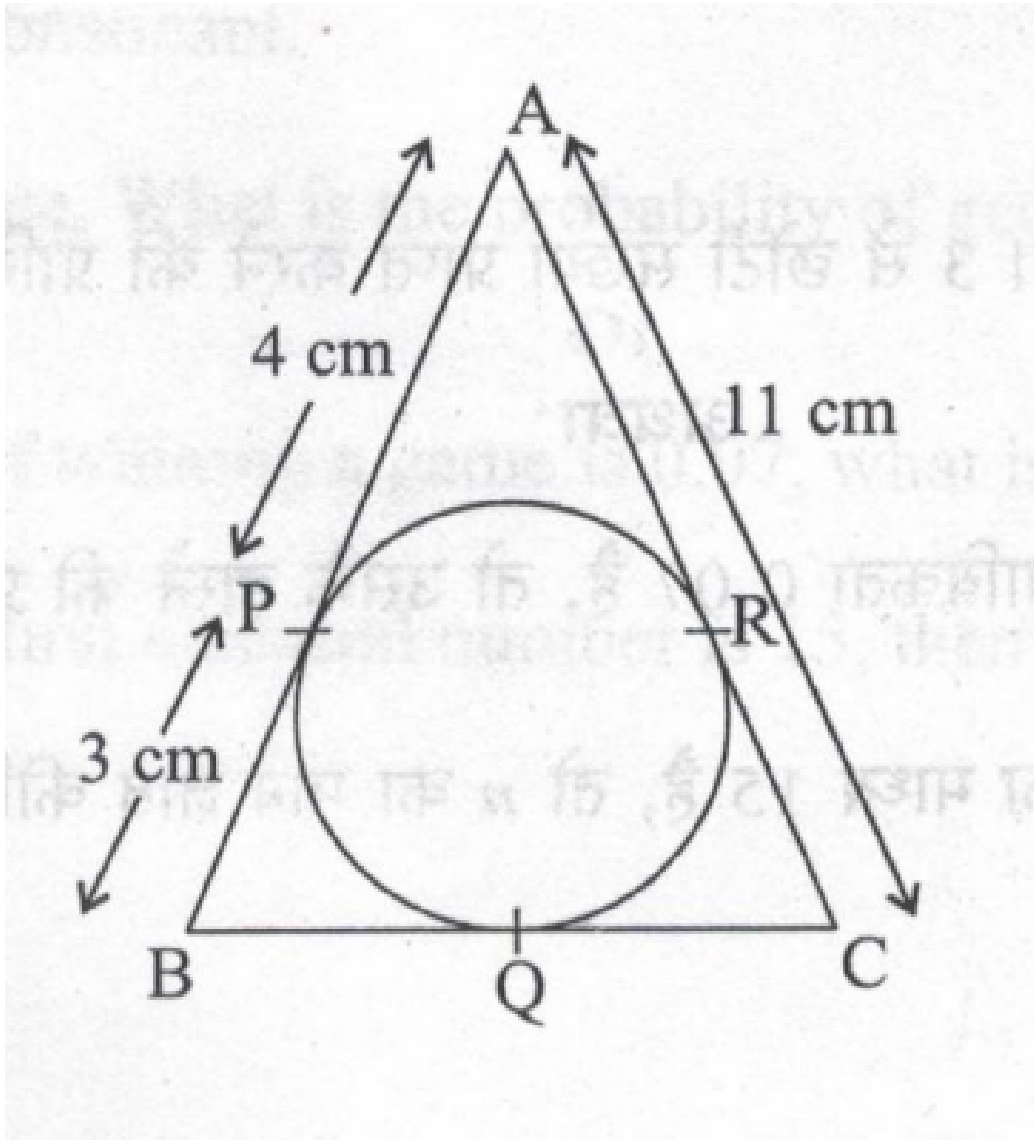


Figure 1: triangle

12. given

$$\Delta ABC \sim \Delta PQR, \text{ if } \frac{AB}{PQ} = \frac{1}{3}, \text{ then } \frac{\text{ar}(\Delta ABC)}{\text{ar}(\Delta PQR)} = 9. \quad (1)$$

13.  $ABC$  is an equilateral triangle of side  $2a$ , then length of one of its altitude is

14.

$$\frac{\cos 80^\circ}{\sin 10^\circ} + \cos 59^\circ \csc 31^\circ \quad (2)$$

15. the value of  $\left(\sin^2 \theta + \frac{1}{1+\tan^2 \theta}\right)$

16. the value of

$$(1 + \tan^2 \theta)(1 - \sin \theta)(1 + \sin \theta) \quad (3)$$

17. The ratio of the length of a vertical rod and the length of its shadow is  $1 : \sqrt{3}$   
Find the angle of elevation of the sun at that moment?

18. Two cones have their heights in the ratio  $1 : 3$  and radii in the ratio  $3 : 1$ .  
What is the ratio of their volumes?

19. A letter of English alphabet is chosen at random. What is the probability that the chosen letter is a consonant.

20. A die is thrown once. What is the probability of getting a number less than 3?

21. If the probability of winning a game is 0,07, what is the probability of losing it?

22. If the mean of the first  $n$  natural number is 15, then find  $n$ .