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 numberis

   (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 $x+y-4 = 0a$ 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 commen difference is q,then its10^{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 whichthe 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,ΔABC is circumscribing a circle, the length of BC is $1cm$.

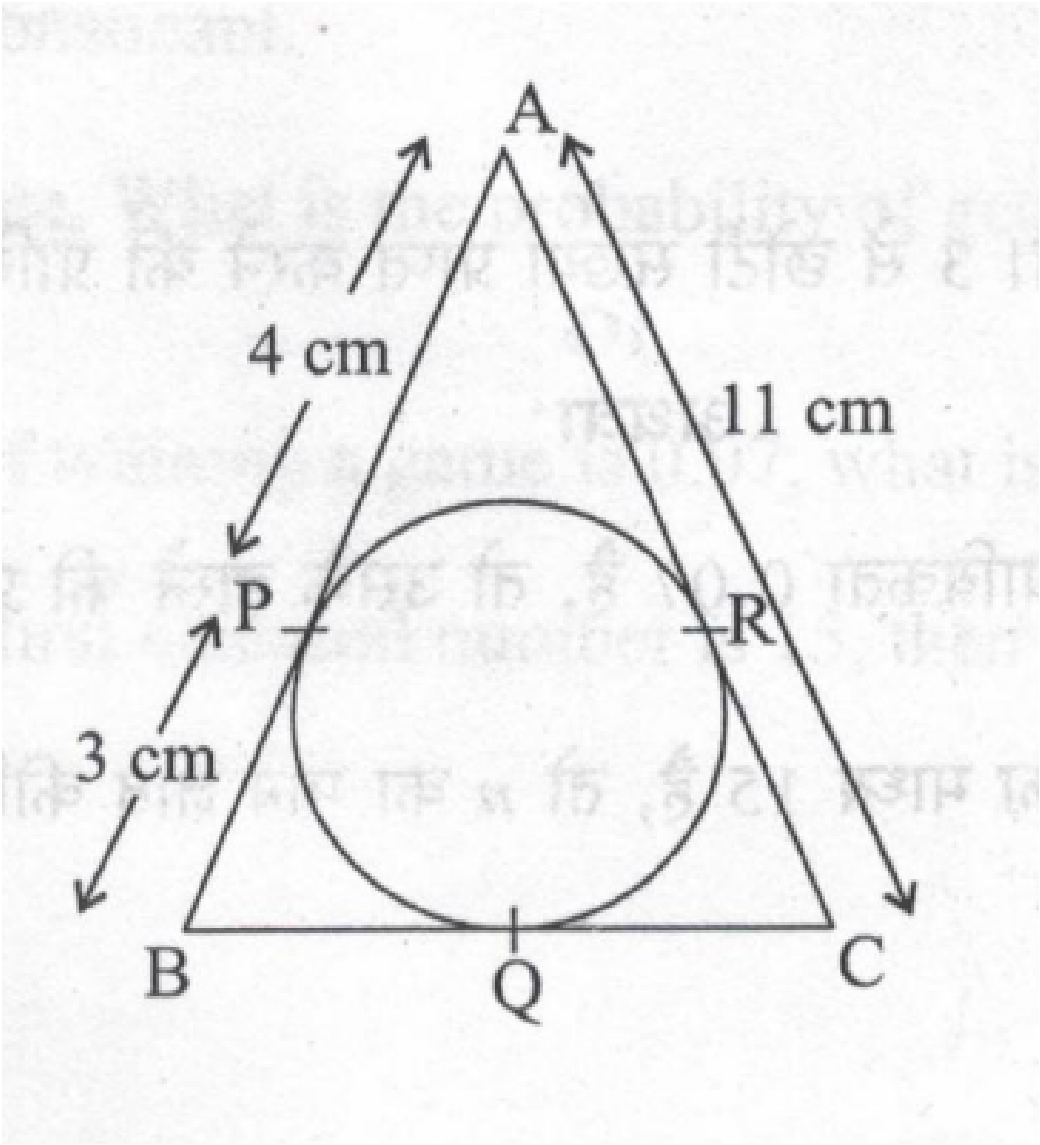

Figure 1: triangle

12. given

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

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

14.

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

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

16. the value of

$$\left(1 + \tan^2\theta\right)(1 - \sin\theta)(1 + \sin\theta) \tag{3}$$

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 probabiliry 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 on natural number is 15, then find n.