

1. The LCM of two numbers is 1200. Which of the following cannot be their HCF?

(a) 600

(b) 500

(c) 400

(d) 200

2.  $7 \times 11 \times 13 + 13$  is

(a) a prime number

(b) a composite number

(c) an odd number

(d) divisible by 5.

3. The decimal representation of a rational number  $\frac{p}{q}$  is a terminating decimal only if for non-negative integers  $m$  and  $n$ , prime factors of  $q$  are of the form:

(a)  $2^m \times 3^n$

(b)  $3^m \times 5^n$

(c)  $3^n \times 7^n$

(d)  $2^m \times 5^n$

4. The reciprocal of an irrational number is:

(a) an integer

(b) a rational

(c) a natural number

(d) an irrational

[CBSE 2012]

5. After how many digits will the decimal expansion of  $\frac{3}{8}$  come to an end?

- (a) 4 (b) 3  
(c) 5 (d) 2.

6.  $n^2 - 1$  is divisible by 8, if  $n$  is:

- (a) an integer (b) a natural number  
(c) an odd natural number  
(d) an even natural number

7. The decimal expansion of number

$$\frac{441}{2^2 \times 5^3 \times 7} \text{ has:}$$

- (a) a terminating decimal  
(b) non-terminating but repeating  
(c) non-terminating non-repeating  
(d) terminating after two places of decimal

[CBSE 2012]

8.  $\pi - \frac{22}{7}$  is:

- (a) rational number  
(b) natural number  
(c) zero  
(d) irrational number

9. 'a' and 'b' are two positive integers, where  $a > b$  and 'b' is a factor of 'a', then HCF (a, b) is:

(a) b

(b) a

(c) ab

(d)  $\frac{a}{b}$

10. If the HCF of two numbers is 1, then the two numbers are called:

(a) twin primes (b) composite

(c) co-primes (d) perfect numbers

11. If the LCM of 12 and 42 is  $10m + 4$ , then the value of 'm' is:

(a) 50

(b) 8

(c)  $\frac{1}{5}$

(d) 1 [CBSE 2012]

12. The prime factor of  $2 \times 7 \times 11 \times 17 \times 23 + 23$  is:

(a) 7

(b) 11

(c) 17

(d) 23 [CBSE 2012]



13. The graph of the equation  $y = ax^2 + bx + c$  is an open downward parabola, if
- (a)  $a > 0$  (b)  $a < 0$  (c)  $a = 0$  (d)  $a = 1$ .
14. The graph of the equation  $y = ax^2 + bx + c$  is an open upward parabola, if
- (a)  $a > 0$  (b)  $a < 0$  (c)  $a = 0$  (d)  $a = -1$ .
15. The degree of a non-zero constant polynomial is
- (a) 0 (b) 1 (c) 2 (d) 3. [HOTS]
16. If  $\alpha$  and  $\beta$  are the zeroes of the polynomial  $2x^2 + 5x + 1$ , then the value of  $\alpha + \beta + \alpha\beta$  is
- (a) -2 (b) -1 (c) 1 (d) 3 [CBSE 2012]
17. If the sum of the zeroes of the quadratic polynomial  $3x^2 - kx + 6$  is 3, then the value of  $k$  is
- (a) 9 (b) 3 (c) -3 (d) 6 [CBSE 2012]
18. If  $\alpha$  and  $\beta$  are the zeroes of the polynomial  $2x^2 + 5x + 1$ , then the value of  $\alpha + \beta + \alpha\beta$  is
- (a) -2 (b) -1 (c) 1 (d) 3 [CBSE 2012]
19. If the sum of the zeroes of the quadratic polynomial  $3x^2 - kx + 6$  is 3, then the value of  $k$  is
- (a) 9 (b) 3 (c) -3 (d) 6 [CBSE 2012]
20. A quadratic polynomial whose zeroes are 5 and -2 is:
- (a)  $x^2 + 5x - 2$  (b)  $x^2 - 2x + 5$  (c)  $x^2 + 3x - 10$  (d)  $x^2 - 3x - 10$  [CBSE 2012]
21. The sum and product of the zeroes of the polynomial  $9x^2 - 5$  respectively are:
- (a) 0,  $-\frac{9}{5}$  (b) 0,  $\frac{9}{5}$  (c) 0,  $\frac{5}{9}$  (d) 0,  $-\frac{5}{9}$
22. If  $\alpha$  and  $\beta$  are zeroes of  $p(x) = 2x^2 - x - 6$ , then the value of  $\alpha^{-1} + \beta^{-1}$  is:
- $\frac{1}{6}$   $-\frac{1}{6}$   
 $\frac{1}{2}$   $-\frac{1}{3}$

23. The age of a son is one-third the age of his mother. If the present age of mother is  $x$  years, then the age of the son after 12 years is

- (a)  $\frac{x}{3} + 12$  (b)  $\frac{x+12}{3}$   
(c)  $x + 4$  (d)  $\frac{x}{3} - 12$

24. If the unit's and ten's digit of a two digit number are  $y$  and  $x$  respectively, then the number will be

- (a)  $10x + y$  (b)  $10y + x$   
(c)  $x + y$  (d)  $xy$

25. The pair of equations

$$x = 0$$

$$y = 0$$

represents

- (a) parallel lines  
(b) coincident lines  
(c) intersecting lines and are perpendicular  
(d) non-intersecting lines.

26. The point of intersection of the lines represented by  $3x - 2y = 6$  and the  $y$ -axis is:

- (a)  $(2, 0)$  (b)  $(0, -3)$   
(c)  $(-2, 0)$  (d)  $(0, 3)$

[CDS 2010]

27. The area of the triangle formed by the coordinate axes and the line  $x + y = 6$  is

- (a) 6 (b) 12  
(c) 18 (d) 36 [HOTS]

28. The area of the triangle formed by the coordinate axes and the line

$$\frac{x}{a} + \frac{y}{b} = 1$$
 is

- (a)  $ab$  (b)  $\frac{1}{2}ab$   
(c)  $a + b$  (d)  $2ab$  [HOTS]

29. The solution of the pair of equations

$$x - y = 0$$

$$2x - y = 2$$

is

- (a)  $x = 1, y = 1$  (b)  $x = 2, y = 2$   
(c)  $x = 3, y = 3$  (d)  $x = 4, y = 4$

[Hint. Test the options]

30. The solution of the equations

$$\frac{x}{a} + \frac{y}{b} = 2$$

$$ax - by = a^2 - b^2$$

is

- (a)  $x = a, y = b$  (b)  $x = -a, y = -b$   
(c)  $x = a, y = -b$  (d)  $x = -a, y = b$

[Hint. Test the options]

31. The value of  $k$  for which the system of equations

$$x - ky = 2$$

$$3x + 2y = -5$$

has a unique solution is

- (a)  $k = \frac{2}{3}$  (b)  $k \neq -\frac{2}{3}$   
(c)  $k = \frac{3}{2}$  (d)  $k \neq -\frac{3}{2}$

32. The value of  $k$  for which the system of equations

$$3x - 4y + 7 = 0$$

$$kx + 3y - 5 = 0$$

has no solution is

- (a)  $\frac{9}{4}$  (b)  $-\frac{9}{4}$   
(c)  $\frac{4}{9}$  (d)  $-\frac{4}{9}$



33. If  $\Delta ABC \sim \Delta DEF$ ,  $\angle C = 60^\circ$ ,  
 $\angle B = 75^\circ$ , then  $\angle F =$

- (a)  $45^\circ$  (b)  $75^\circ$   
 (c)  $60^\circ$  (d)  $90^\circ$

34.  $\Delta ABC$  and  $\Delta DEF$  are two similar triangles such that  $\angle A = 45^\circ$ ,  $\angle E = 56^\circ$  then  $\angle C$  is equal to:

- (a)  $45^\circ$  (b)  $56^\circ$   
 (c)  $101^\circ$  (d)  $79^\circ$  [CBSE 2012]

35. The length of the shadow of a 12 cm long vertical rod is 8 cm. At the same time, the length of the shadow of a tower is 40 cm. Find the height of the tower.

- (a) 60 m (b) 60 cm  
 (c) 40 cm (d) 80 cm.

36. The lengths of the diagonals of a rhombus are 8 cm and 6 cm. Then the length of each side of the rhombus is

- (a) 2 cm (b) 3 cm  
 (c) 4 cm (d) 5 cm.

37. The height of an equilateral triangle of side  $a$  is

- (a)  $\frac{a}{2}$  (b)  $a\sqrt{3}$   
 (c)  $\frac{a\sqrt{3}}{2}$  (d)  $\frac{a\sqrt{3}}{4}$

38. In a triangle, the internal bisector of an angle bisects the opposite side. Find the nature of the triangle.

- (a) right angled (b) equilateral  
 (c) scalene (d) isosceles.

39.  $\Delta DEF \sim \Delta ABC$ . If  $DE : AB = 2 : 3$  and ar ( $\Delta DEF$ ) is equal to 44 square units. Then ar ( $\Delta ABC$ ) in square units is:

- (a) 99 (b) 120  
 (c)  $\frac{176}{9}$  (d) 66

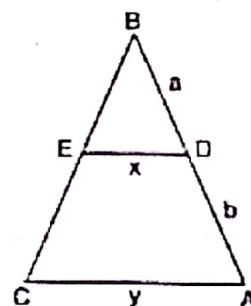
[CBSE 2012]

40.  $\Delta ABC \sim \Delta PQR$ . If  $\frac{\text{ar}(\Delta ABC)}{\text{ar}(\Delta PQR)} = \frac{9}{4}$  and

$AB = 18$  cm, then corresponding length of  $PQ$  is:

- (a) 14 cm (b) 8 cm  
 (c) 10 cm (d) 12 cm

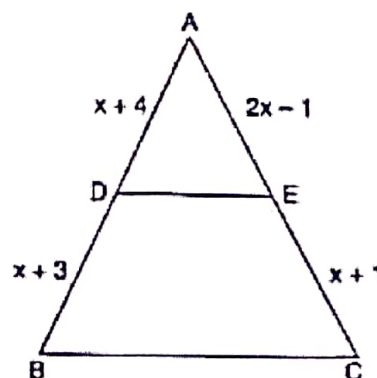
41. In the given figure,  $DE \parallel AC$ , which of the following is true?



- (a)  $x = \frac{a+b}{ay}$  (b)  $y = \frac{ax}{a+b}$   
 (c)  $x = \frac{ay}{a+b}$  (d)  $\frac{x}{y} = \frac{a}{b}$

[CBSE 2012]

42. In the following figure,  $DE \parallel BC$ . Find the value of  $x$ .



- (a)  $\sqrt{5}$  (b)  $\sqrt{6}$   
 (c)  $\sqrt{3}$  (d)  $\sqrt{7}$

43. If  $\sin \theta = \frac{1}{2}$ , then the value of

$(\tan \theta + \cot \theta)^2$  is

(a)  $\frac{16}{3}$

(b)  $\frac{8}{3}$

(c)  $\frac{4}{3}$

(d)  $\frac{10}{3}$

44. If  $\theta = 45^\circ$ , then the value of  $\frac{1 - \cos 2\theta}{\sin 2\theta}$  is

(a) 0

(b) 1

(c) 2

(d)  $\infty$

45. If  $\sin \theta - \cos \theta = 0$ , then the value of  $\sin^4 \theta + \cos^4 \theta$  is

(a)  $\frac{1}{2}$

(b)  $\frac{1}{4}$

(c)  $\frac{3}{4}$

(d) 1 [CBSE 2012]

46. If  $\tan \theta + \cot \theta = 5$ , then the value of  $\tan^2 \theta + \cot^2 \theta$  is:

(a) 23

(b) 25

(c) 27

(d) 15 [CBSE 2012]

47. If  $\tan \theta + \cot \theta = 2$ , then  $\tan^2 \theta + \cot^2 \theta$  is:

(a) 4

(b) 6

(c) 2

(d) 1 [CBSE 2012]

48. If  $\operatorname{cosec} \theta - \cot \theta = \frac{1}{4}$ , then the value of  $\operatorname{cosec} \theta + \cot \theta$  is:

(a) 4

(b)  $\frac{1}{4}$

(c) 1

(d) -1 [CBSE 2012]

49. If  $\cos \theta = \frac{a}{b}$ , then  $\operatorname{cosec} \theta$  is equal to:

(a)  $\frac{b}{a}$

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

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

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

[CBSE 2012]

50. If  $\cot \theta = \frac{b}{a}$ , then the value of

$\frac{\cos \theta + \sin \theta}{\cos \theta - \sin \theta}$  is

(a)  $\frac{b-a}{b+a}$

(b)  $b-a$

(c)  $b+a$

(d)  $\frac{b+a}{b-a}$

51. If  $\cos \theta = \frac{1}{2}$ , then the value of

$\frac{\cot \theta + \tan \theta}{\operatorname{cosec} \theta}$  is

(a) 1

(b) 3

(c) 4

(d) 2

52. If  $a \cos \theta + b \sin \theta = m$  and  $a \sin \theta - b \cos \theta = n$ , then  $a^2 + b^2 =$

(a)  $m^2 - n^2$

(b)  $n^2 - m^2$

(c)  $m^2 + n^2$

(d)  $m^2 n^2$

53. If  $x = r \sin \theta \cos \phi$ ,  $y = r \sin \theta \sin \phi$  and  $z = r \cos \theta$ , then  $x^2 + y^2 + z^2 =$

(a)  $r$

(b)  $r^2$

(c)  $\frac{r^2}{2}$

(d)  $2r^2$

54. If  $\operatorname{cosec} \theta = 2$  and  $\cot \theta = \sqrt{3}p$ , where ' $\theta$ ' is an acute angle, then the value of ' $p$ ' is:

(a) 2

(b) 1

(c) 0

(d)  $\sqrt{3}$  [CBSE 2012]



55. The radius of a circle is 21 cm. Find its area.

- (a)  $1386 \text{ cm}^2$  (b)  $2\pi(21) \text{ cm}^2$   
 (c)  $\frac{\pi}{2}(21)^2 \text{ cm}^2$  (d)  $\frac{\pi}{4}(21)^2 \text{ cm}^2$

56. The diameter of a semicircle is 8 cm. Its area is

- (a)  $2\pi \text{ cm}^2$  (b)  $4\pi \text{ cm}^2$   
 (c)  $8\pi \text{ cm}^2$  (d)  $16\pi \text{ cm}^2$

57. The radii of two concentric circles are 6 cm and 4 cm. Find the ratio of their areas.

- (a) 9 : 4 (b) 3 : 4  
 (c) 9 : 2 (d) 9 : 16

58. The minute hand of a clock is of length 4 cm. Find the angle swept by the minute hand in 15 minutes.

- (a)  $90^\circ$  (b)  $30^\circ$   
 (c)  $45^\circ$  (d)  $60^\circ$

59. Find the area of the major segment of a circle if the area of the minor segment is  $25 \text{ cm}^2$  and the area of the circle is  $100 \text{ cm}^2$ .

- (a)  $25 \text{ cm}^2$  (b)  $100 \text{ cm}^2$   
 (c)  $75 \text{ cm}^2$  (d)  $50 \text{ cm}^2$

60. In a circle of diameter 42 cm, if an arc subtends an angle of  $60^\circ$  at the centre

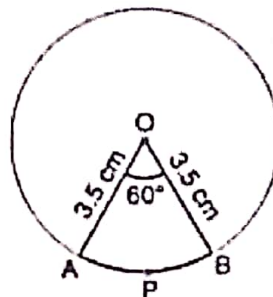
where  $\pi = \frac{22}{7}$ , then length of arc is:

- (a) 11 cm (b)  $\frac{22}{7} \text{ cm}$   
 (c) 22 cm (d) 44 cm

[CBSE 2012]

61. In given figure, there is a circle with centre O and radius 3.5 cm, the central angle is  $60^\circ$  then the length of OAPB is:

- (a) 35 cm (b) 32.08 cm  
 (c) 10.66 cm (d) 18.33 cm

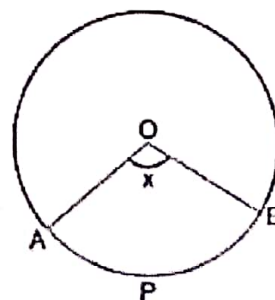


[CBSE 2012]

62. The perimeter of a sector of a circle whose central angle is  $90^\circ$  and radius 7 cm is:

- (a) 35 cm (b) 25 cm  
 (c) 77 cm (d) 7 cm

63. In the following figure, O is the centre of the circle. The area of the sector OAPB is  $\frac{5}{18}$  part of the area of the circle. Find the value of x.



- (a)  $30^\circ$  (b)  $60^\circ$   
 (c)  $45^\circ$  (d)  $100^\circ$

64. The radius of a circle is 5 cm. Find the area of the sector formed by an arc of this circle of length 9 cm.

- (a)  $45 \text{ cm}^2$  (b)  $22.5 \text{ cm}^2$   
 (c)  $67.5 \text{ cm}^2$  (d)  $2.25 \text{ cm}^2$



65 If probability of happening of an event is  $\frac{5}{9}$ , then the probability of non-happening of this event is

- (a) 0 (b) 1  
(c)  $\frac{4}{9}$  (d)  $\frac{2}{3}$  [CBSE 2012]

66 If the probability of an event is  $p$ , the probability of non happening of event is

- (a)  $p - 1$  (b)  $p$   
(c)  $1 - p$  (d)  $1 - \frac{1}{p}$   
[CBSE 2012]

67 If the probability of an event is 0.65, then the probability of not happening of that event is

- (a) 0.35 (b) 0.035  
(c) 1.25 (d) 3 [CBSE 2012]

68 The probability that it will rain tomorrow is 0.3. What is the probability that it will not rain tomorrow?

- (a) 0.3 (b) 0.2  
(c) 0.7 (d) 0.07

69 Two friends were born in the year 2000. The probability that they have the same birth date is

- (a)  $\frac{1}{2000}$  (b)  $\frac{2}{365}$   
(c)  $\frac{1}{365}$  (d)  $\frac{1}{366}$   
[HOTS] [CBSE 2012]

70 What is the probability that the first snowfall in Srinagar next winter will take place on Sunday?

- (a)  $\frac{1}{7}$  (b)  $\frac{2}{7}$   
(c)  $\frac{3}{7}$  (d)  $\frac{6}{7}$

71 If the probability of the non-happening of an event is  $q$ , then the probability of happening of that event is

- (a)  $1 - q$  (b)  $q$   
(c)  $\frac{q}{2}$  (d)  $2q$

72 If probability of success is 0.5%, then probability of failure is

- (a) 0.95 (b) 0.095  
(c) 99.5 (d) 0.995  
[HOTS] [CBSE 2012]

73 A girl calculates the probability of her winning the game in a match is 0.08. What is the probability of her losing the game?

- (a) 91% (b) 8%  
(c) 92% (d) 80% [CBSE 2012]

74 If  $p(E) = 0.05$ , then  $p(\text{not } E)$  is equal to

- (a) -0.05 (b) 0.05  
(c) 0.9 (d) 0.95 [CBSE 2012]