1. The scientific notation of the number 0.00005896 is

(a) 5.896×10^{-5}

(c) 5.896×10^{-6}

(b) 5.896×10^{-7}

(d) 5.896×10^{-8}

2. The decimal form of the number 5.243×10^{-6} is

(a) 0.00005243

(c) 0.05243

(b) 0.000005243

(d) 0.0005243

3. Which of the following is the decimal expansion of 10/3?

(a) 33.3333……..

(c) 3.3333……….

(b) 0.33333……..

(d) 0.03333………..

4. The fraction form of

$$1.\overline{27}$$ is

(a) 14/11

(c) 34/22

(b) 24/11

(d) 54/22

5. Which of the following is an irrational number between 1/7 and 2/7?

(a) 4.2501…

(c) 2.105….

(b) 0.1501…..

(d) 3.205…..

6. Add:

$$2\sqrt{2} + 5\sqrt{3} \text{ and } \sqrt{2} - 3\sqrt{3}$$

(a) 3√2+√3

(c) 3√2-2√3

(b) √2+2√3

(d) 3√2+2√3

7. Simplify:

$$\left(5 + \sqrt{5}\right)\left(5 - \sqrt{5}\right)$$

(a) 30

(c) 31

(b) 10

(d) 20

8. What is the degree of the polynomial given below?

$$2 - y^2 - y^3 + 2y^8$$

(a) 8

(c) 3

(b) 1

(d) 2

9. What is the value of the polynomial $p(x) = 5x^2 - 3x + 7$ at $x=1$?

(a) 4

(c) 9

(b) 3

(d) 5

10. Find the remainder when $3x^4 - 4x^3 - 3x - 1$ divided by $x - 1$

(a) 6   (c) 3

(b) -5   (d) -2

11. Find the value of k, if $x - 1$ is a factor of $4x^3 + 3x^2 - 4x + k$.

(a) -6   (c) -3

(b) 5   (d) 2

12. What is the value of the expression given below?
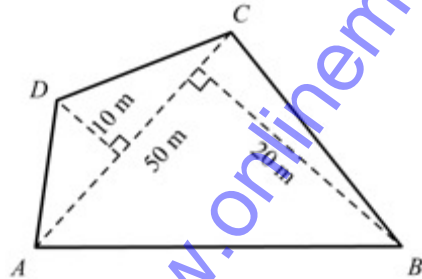
$$\sqrt[3]{4} \times \sqrt[3]{16}$$

(a) 6   (c) 3

(b) 5   (d) 4

13. Find the area of the quadrilateral *ABCD* given below

(a) 750 sq.m

(c) 75 sq.m

(b) 7.5 sq.m

(d) 7500 sq.m

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14. Cost of leveling a land is \$12 per square meter. A land is in the form of a trapezium whose parallel sides are of lengths 18m and 12 m. If its other two sides are each of length 5m, find the total cost incurred in leveling the land.

(a) 721

(c) 719

(b) 720

(d) 718

15. The perimeter of a rhombus is 20 cm. One of the diagonals is of length 8 cm. Find the length of the other diagonal and the area of the rhombus.
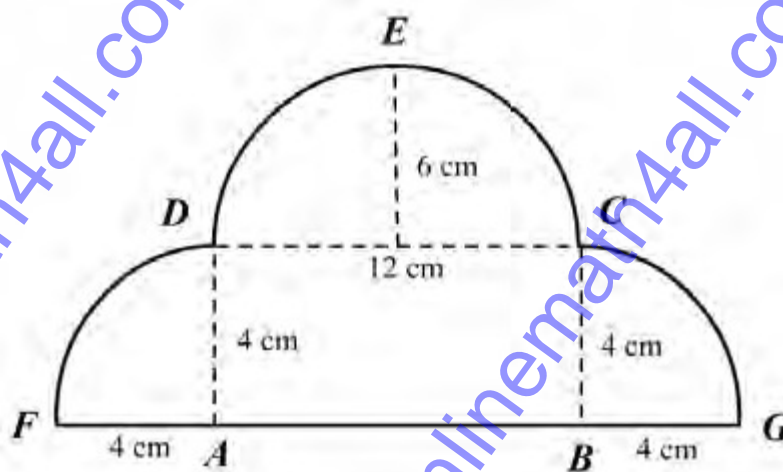
(a) 44 sq.cm

(c) 24 sq.cm

(b) 34 sq.cm

(d) 14 sq.cm
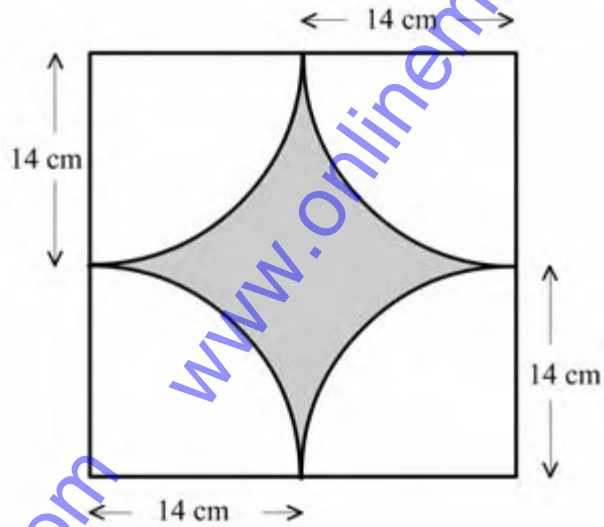
16. Find the area of the design given below.

(a) 729/7 sq.cm

(c) 7290/7 sq.cm

(b) 908/7 sq.cm

(d) 9080/7 sq.cm

17. Find the area of the shaded region in Figure 2.45, where the boundaries of the region are quadrants of a circle.
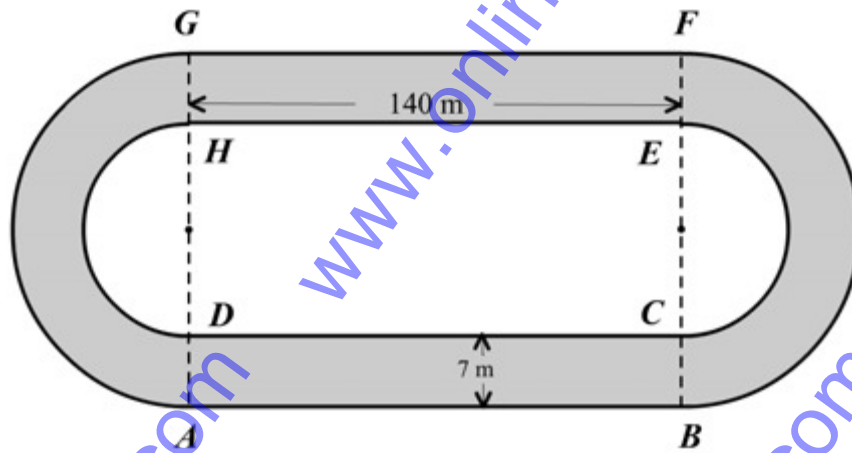

(a) 166

(c) 168

(b) 166 sq.cm

(d) 168 sq.cm

18. A running track of 7m wide is as shown in the figure below. The inside perimeter is 720m and the length of each straight portion is 140m. The curved portions are in the form of semi-circles. Find the area of the track

(a) 4297 sq.cm

(c) 5297 sq.cm

(b) 7194 sq.cm

(d) 5194 sq.cm

19. Find the value of the expression given below.

$$\log_3 4 \times \log_4 5 \times \log_5 6 \times \log_6 7 \times \log_7 8 \times \log_8 9$$

(a) 2

(c) 1

(b) 4

(d) 3

20. Solve the given equation below.

$$x + 2\log_{27} 9 = 0$$

(a) -2/3

(c) 1/3

(b) 4/3

(d) -4/3

21. What is the value of

$$\frac{(76.25)^3 \times \sqrt[3]{1.928}}{(42.75)^5 \times 0.04623}$$

(a) 0.08265

(c) 0.08366

(b) 0.08125

(d) 0.08652

22. Find the number of sub sets for the set A = {1,2,3,4,5}.

(a) 42

(c) 36

(b) 32

(d) 52

23. {The number of engineering colleges in Singapore}

The above set is a

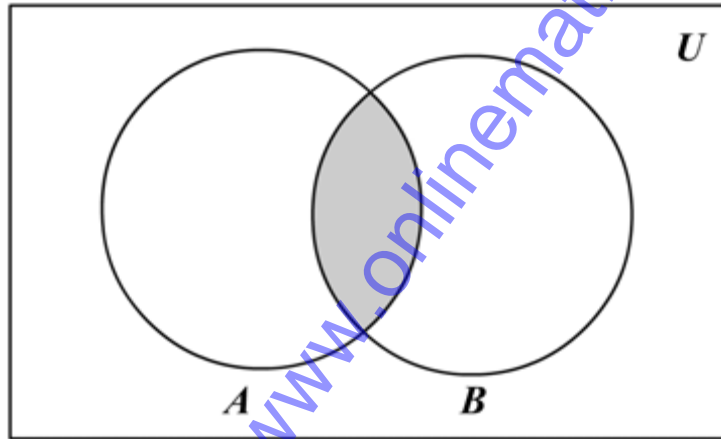(a) Finite set

(c) Infinite set

(b) Singleton set

(d) none of these

24. The cardinal number of the set P {0}

(a) Null set

(c) 1

(b) Singleton set

(d) 0

25. If $A = \{1, 2, 3\}$ and $B = \{2, 3, 4\}$, find AnB.

(a) {2,3}

(c) {1,2,3,4}

(b) {2}

(d) {1,3}

26.

The Venn diagram given above represents

(a) AuB (c) AnB

(b) (AuB)' (d) A'nB'

27. Find the sum of $2x^4 - 3x^2 + 5x + 3$ and $4x + 6x^3 - 6x^2 - 1$.

(a) $2x^4 + 6x^3 - 9x^2 + 9x + 2$ (c) $2x^4 + 6x^3 - 9x^2 + 9x - 2$

(b) $2x^4 + 6x^3 - 9x^2 - 9x + 2$ (d) $-2x^4 - 3x^2 + 5x + 3$

28. If a/b = 5, then the value of (a-b)/(a+b) is

(a) 2/3

(c) 1/3

(b) 5/3

(d) 7/3

29. For every real number x, does $x^2 - 1$

(a) < 0

(c) > 0

(b) =0

(d) < 1

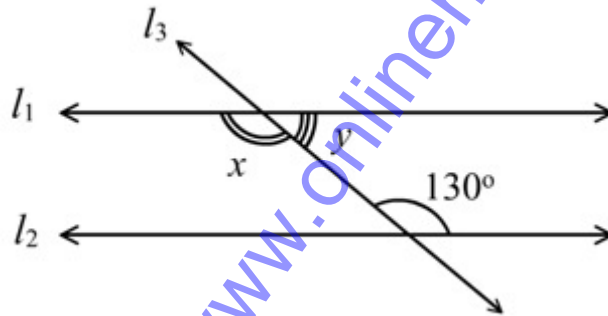30. If two sides of a triangle are equal, then the angles opposite to them are

(a) Equal

(c) Supplementary

(b) Not equal

(d) none of these

31. In the below figure, if the line l_3 is a transversal to the parallel lines l_1 and l_2,

then the angle x is

(a) 130°   (c) 230°

(b) 330°   (d) 430°

32. Find the angles x and y in the below figure.

(a) 55, 65   (c) 35, 65

(b) 45, 65   (d) 25, 65

33. If the slope of the line is undefined, the line is

(a) Rising line

(c) Parallel to x-axis

(b) Falling line

(d) Parallel to y- axis

34. The slope of the line passing through (5,6) and (15,9) is

(a) 7/10

(c) 2/10

(b) 3/10

(d) 3/5

35. What is the x- intercept and y- intercept of the line 3x+4y=12?

(a) 4, 3

(c) 8, 5

(b) 7, 5

(d) 5, 3

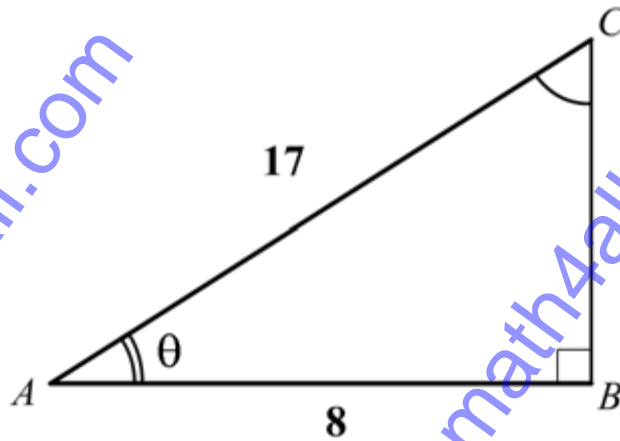36. Find the equation of the line having slope 21 and *y*-intercept –3.

(a) x-2y+6 =0   (c) x-2y-6 =0

(b) x+2y-6 =0   (d) -x-2y-6 =0

37. Find the value of $\sin\theta$ in the below figure.

(a) 35/17   (c) 24/27

(b) 15/17   (d) 2/7

38. If sinθ = 7/25, then the value of cotθ is

(a) 22/7

(c) 25/7

(b) 23/7

(d) 24/7

39. Calculate the A.M. for the following data:

Marks	80	85	90	95	100
No. of students	5	6	6	2	1

(a) 87

(c) 89

(b) 90

(d) 91

40. Find the median of 23, 25, 29, 30, 39.

(a) 49

(c) 59

(b) 29

(d) 79

41. Find the mode from the following frequency table:

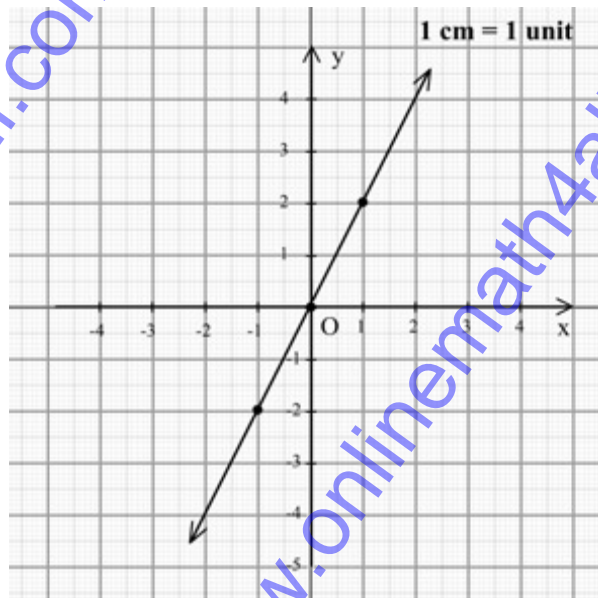| Wage	45	50	55	60	65	70	75
No. of Employees	12	11	14	13	12	10	9

(a) 45   (c) 55

(b) 25   (d) 75

42.

In the above graph, the line is passing through the points
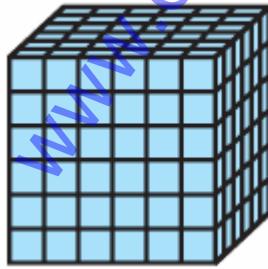
(a) (-1,-2) & (1,2)   (c) (-1,2) & (-1,2)

(b) (1,-2) & (1,2)   (d) (-1,-2) & (1,-2)

43. Hameed has built a cubical water tank with lid for his house, with each outer edge 1.5 m long. He gets the outer surface of the tank excluding the base, covered with square tiles of side 25 cm (see the below figure). Find how much he would spend for the tiles, if the cost of the tiles is $360 per dozen.
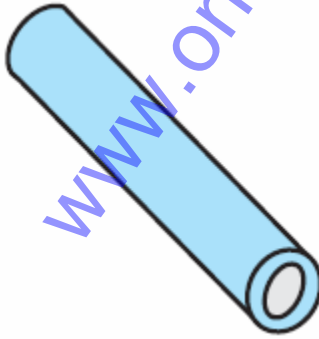

(a) 2400

(b) 3400

(c) 4400

(d) 5400

44. Jose had to make a model of a cylindrical kaleidoscope for her science project. She wanted to use chart paper to make the curved surface of the kaleidoscope, (see the figure below). What would be the area of chart paper required by her, if she wanted to make a kaleidoscope of length 25 cm with a 3.5 cm radius?
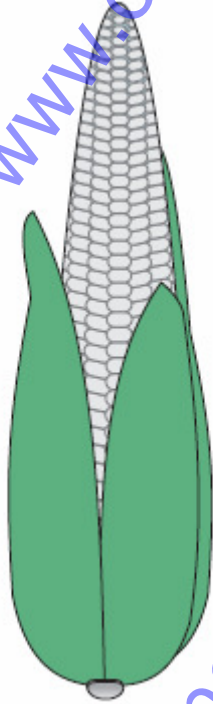
(a) 750   (c) 250

(b) 550   (d) 1350

45. A corn cob (see the figure below), shaped somewhat like a cone, has the radius of its broadest end as 2.1 cm and length (height) as 20 cm. If each 1 cm^2 of the surface of the cob carries an average of four grains, find how many grains you would find on the entire cob.

(a) 132

(b) 431

(c) 331

(d) 531

46. A coin is tossed 1000 times with the following frequencies:
Head: 455, Tail: 545, compute the probability for getting head.

(a) 0.425

(c) 0.545

(b) 0.325

(d) 0.455

47. A tyre manufacturing company kept a record of the distance covered before a tyre needed to be replaced. The table below shows the results of 1000 cases.

Distance (in km)	less than 4000	4000 to 9000	9001 to 14000	more than 14000
Frequency	20	210	325	445

If you buy a tyre of this company, what is the probability that it will need to be replaced before it has covered 4000 km?

(a) 0.04

(c) 0.03

(b) 0.02

(d) 0.05

48. If John covers 150 kilometers in 150 minutes, what is his speed per hour?

(a) 60

(c) 33

(b) 28

(d) 24

49. When 3 fair dies are rolled, what is the total number of all possible out puts?

(a) 321

(c) 546

(b) 418

(d) 216

50. If one can go to school by 5 different buses and come back by 4 different buses, then the total number of ways of going to and coming back from school is

(a) 32

(c) 20

(b) 80

(d) 9

Answers					

1. a	2. b	3. c	4. a	5. b	6. d
7. d	8. a	9. c	10. b	11. c	12. d
13. a	14. b	15. c	16. b	17. d	18. d
19. a	20. d	21. c	22. b	23. a	24. c
25. a	26. c	27. a	28. a	29. c	30. a
31. a	32. d	33. d	34. b	35. a	36. c
37. b	38. d	39. a	40. b	41. c	42. a
43. d	44. b	45. d	46. d	47. b	48. a
49. d	50. c				