

1. Simplify the following

$$\frac{-4}{5} \times \frac{3}{7} \times \frac{15}{16} \times \frac{14}{9}$$

(a) 1/5

(c) 3/5

(b) 1/4

(d) 1/2

2. Solve for "x"

$$\frac{x}{3} + \frac{5}{2} = -\frac{3}{2}$$

(a) -12

(c) -24

(b) -30

(d) -36

3. Find the value of the following:

$$\frac{3}{7} + \left(\frac{-6}{11}\right) + \left(\frac{-8}{21}\right) + \left(\frac{5}{22}\right)$$

(a) -125/464

(c) -125/462

(b) -125/463

(d) -125/461

4. The present age of Jack's mother is three times the present age of Jack. After 5 years their ages will add to 66 years. Find their present ages.

(a) 45, 11

(c) 41, 15

(b) 43, 13

(d) 42, 14

5. The organizers of an essay competition decide that a winner in the competition gets a prize of \$100 and a participant who does not win gets a prize of \$ 25. The total prize money distributed is \$3000. Find the number of winners, if the total number of participants is 63.

(a) 18

(c) 20

(b) 19

(d) 21

6. The digits of a two-digit number differ by 3. If the digits are interchanged, and the resulting number is added to the original number, we get 143. What can be the original number?

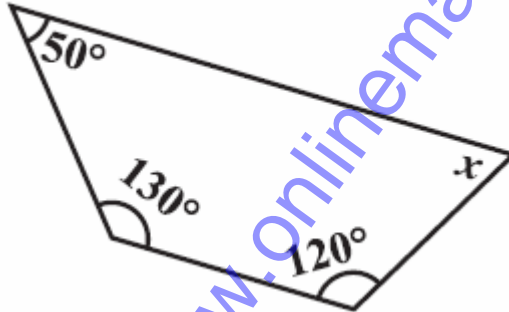
(a) 83

(c) 85

(b) 84

(d) 86

7. Find the angle measure  $x$  in the following figure.



(a)  $60^\circ$

(c)  $45^\circ$

(b)  $50^\circ$

(d)  $70^\circ$

8. Find the number of sides of a regular polygon whose each exterior angle has a measure of  $45^\circ$ .

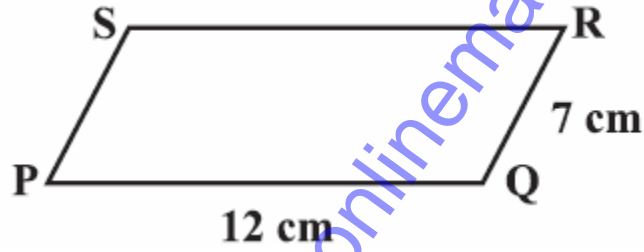
(a) 8

(c) 4

(b) 5

(d) 6

9. Find the perimeter of the parallelogram PQRS given below.



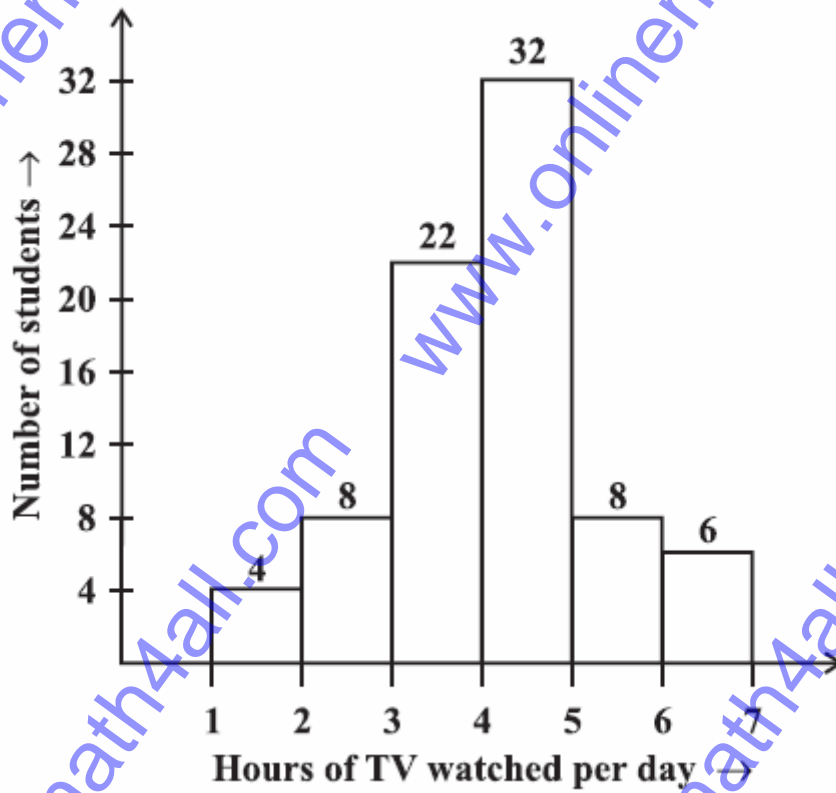
(a) 36 cm

(c) 38 cm

(b) 37 cm

(d) 39 cm

10. In the following graph, how many students spent more than 5 hours in watching TV?



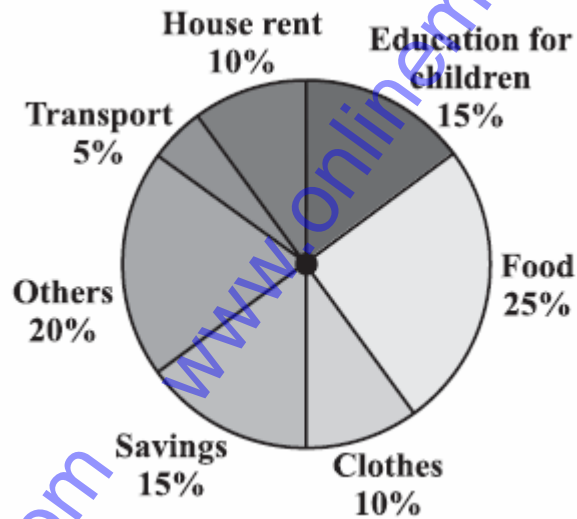
(a) 18

(c) 14

(b) 15

(d) 16

11. In the following pie chart, if the monthly savings of the family is \$3000, what is the monthly expenditure on clothes?



(a) \$1750

(c) \$2250

(b) \$2000

(d) \$2500

12. A bag has 4 red balls and 2 yellow balls. (The balls are identical in all respects other than color). A ball is drawn from the bag without looking into the bag. What is probability of getting a red ball?

(a)  $\frac{2}{3}$

(c)  $\frac{4}{5}$

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

(d)  $\frac{7}{8}$

13. If you have a spinning wheel with 3 green sectors, 1 blue sector and 1 red sector, what is the probability of getting a green sector?

(a)  $\frac{7}{9}$

(c)  $\frac{3}{5}$

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

(d)  $\frac{1}{8}$

14. How many numbers lie between squares of the numbers 12 and 13?

(a) 28

(c) 14

(b) 24

(d) 16

15. In a right triangle the length of the hypotenuse and a side are respectively 5 cm and 3 cm. Find the third side.

(a) 5

(c) 10

(b) 7

(d) 4

16. 2025 plants are to be planted in a garden in such a way that each row contains as many plants as the number of rows. Find the number of rows and the number of plants in each row.

(a) 54, 54

(c) 67, 67

(b) 45, 45

(d) 72, 72

17. Anderson makes a cuboid of plasticine of sides 5 cm, 2 cm, 5 cm. How many such cuboids will he need to form a cube?

(a) 18

(c) 14

(b) 15

(d) 20

18. The list price of a frock is \$220. A discount of 20% is announced on sales. What is the sale price?

(a) \$176

(c) \$225

(b) \$200

(d) \$251



19. On Sunday 845 people went to the Zoo. On Monday only 169 people went. What is the percent decrease in the people visiting the Zoo on Monday?

(a) 56

(c) 80

(b) 58

(d) 60

20. A sum of \$10,000 is borrowed at a rate of interest 15% per annum for 2 years. Find the amount to be paid at the end of 2 years.

(a) \$14000

(c) \$12250

(b) \$13000

(d) \$12500

21. What amount is to be repaid on a loan of \$12000 for  $3\frac{1}{2}$  years at 10% per annum compounded half yearly?

(a) \$13891.50

(c) \$15891.50

(b) \$14891.50

(d) \$16891.50

22. The population of a city was 20,000 in the year 1997. It increased at the rate of 5% p.a. Find the population at the end of the year 2000.

(a) 23149

(c) 23153

(b) 23151

(d) 23155

23. Add:  $(7xy + 5yz - 3zx)$ ,  $(4yz + 9zx - 4y)$ ,  $(-3xz + 5x - 2xy)$

(a)  $5xy + 9yz + 3zx + 5x - 4y$

(c)  $5xy + 9yz + 3zx + 5x + 4y$

(b)  $5xy + 9yz + 3zx - 5x - 4y$

(d)  $5xy + 9yz - 3zx + 5x - 4y$

24. Simplify the expression and evaluate it as directed:

$$3y(2y - 7) - 3(y - 4) - 63 \text{ for } y = -2$$

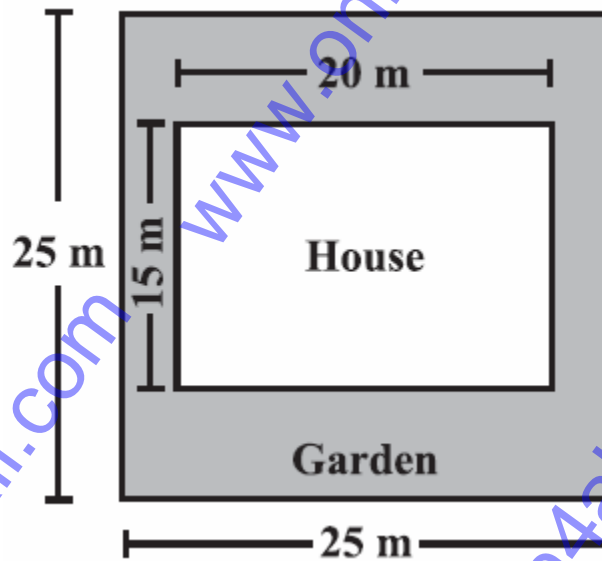
(a) 19

(c) 10

(b) 13

(d) 21

25. Mrs. Peterson has a square plot with the measurement as shown in the figure. She wants to construct a house in the middle of the plot. A garden is developed around the house. Find the total cost of developing a garden around the house at the rate of \$55 per  $\text{m}^2$ .



(a) \$17874

(c) \$17876

(b) \$17875

(d) \$17877

26. A flooring tile has the shape of a parallelogram whose base is 24 cm and the corresponding height is 10 cm. How many such tiles are required to cover a floor of area  $1080 \text{ m}^2$ ?

(a) 38000

(c) 45000

(b) 35000

(d) 40000

27. The area of a trapezium shaped field is  $480 \text{ m}^2$ , the distance between two parallel sides is 15 m and one of the parallel side is 20 m. Find the other parallel side?

(a) 44 m

(c) 11 m

(b) 28 m

(d) 26 m

28. The internal measures of a cuboidal room are  $12 \text{ m} \times 8 \text{ m} \times 4 \text{ m}$ . Find the total cost of whitewashing all four walls of a room, if the cost of white washing is \$5 per  $\text{m}^2$ . What will be the cost of white washing if the ceiling of the room is also white washed.

(a) \$1277

(c) \$1279

(b) \$1278

(d) \$1280

29. A road roller takes 750 complete revolutions to move once over to level a road. Find the area of the road if the diameter of a road roller is 84 cm and length is 1 m.

(a)  $980 \text{ m}^2$

(c)  $3980 \text{ m}^2$

(b)  $1980 \text{ m}^2$

(d)  $2980 \text{ m}^2$

30. A rectangular paper of width 14 cm is rolled along its width and a cylinder of radius 20 cm is formed. Find the volume of the cylinder

(a)  $17400 \text{ cm}^3$

(c)  $17600 \text{ cm}^3$

(b)  $17500 \text{ cm}^3$

(d)  $17700 \text{ cm}^3$

31. Find the value of the following:

$$\left(\frac{1}{2}\right)^{-2} + \left(\frac{1}{3}\right)^{-2} + \left(\frac{1}{4}\right)^{-2}$$

(a) 24

(c) 28

(b) 25

(d) 29

32. Find  $m$  so that  $(-3)^{m+1} \times (-3)^5 = (-3)^7$

- (a) 1 (c) 3  
(b) 2 (d) 4

33. If the weight of 12 sheets of thick paper is 40 grams, how many sheets of the same paper would weigh  $5/2$  kilogram?

- (a) 990 (c) 690  
(b) 750 (d) 510

34. The scale of a map is given as 1:30000000. Two cities are 4 cm apart on the map. Find the actual distance between them.

- (a) 2400 km (c) 1600 km  
(b) 2200 km (d) 1200 km

35. A photograph of a bacteria enlarged 50,000 times attains a length of 5 cm as shown in the diagram. What is the *actual* length of the bacteria? If the photograph is enlarged 20,000 times only, what would be its enlarged length?



(a)  $10^{-6}$  cm, 4cm

(c)  $10^{-5}$  cm, 2cm

(b)  $10^{-4}$  cm, 2cm

(d)  $10^{-4}$  cm, 3cm

36. Find the factors of  $3m^2+9m+6$ .

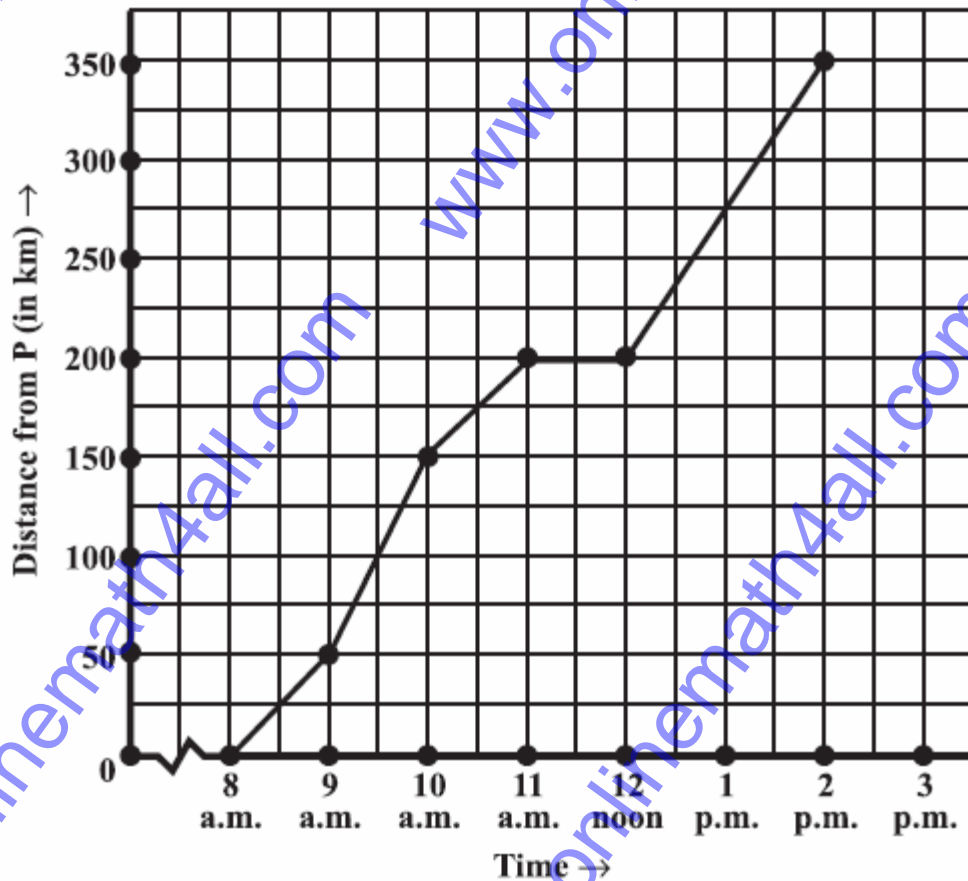
(a)  $3(m-1)(m-2)$

(c)  $3(m-1)(m+2)$

(b)  $3(m+1)(m+2)$

(d)  $3(m+1)(m-2)$

37. The graph given below describes the distances of a car from a city P at different times when it is traveling from City P to City Q, which are 350 km apart. Study the graph and answer the following:



How far did the car go during 3rd hour?

(a) 50 km

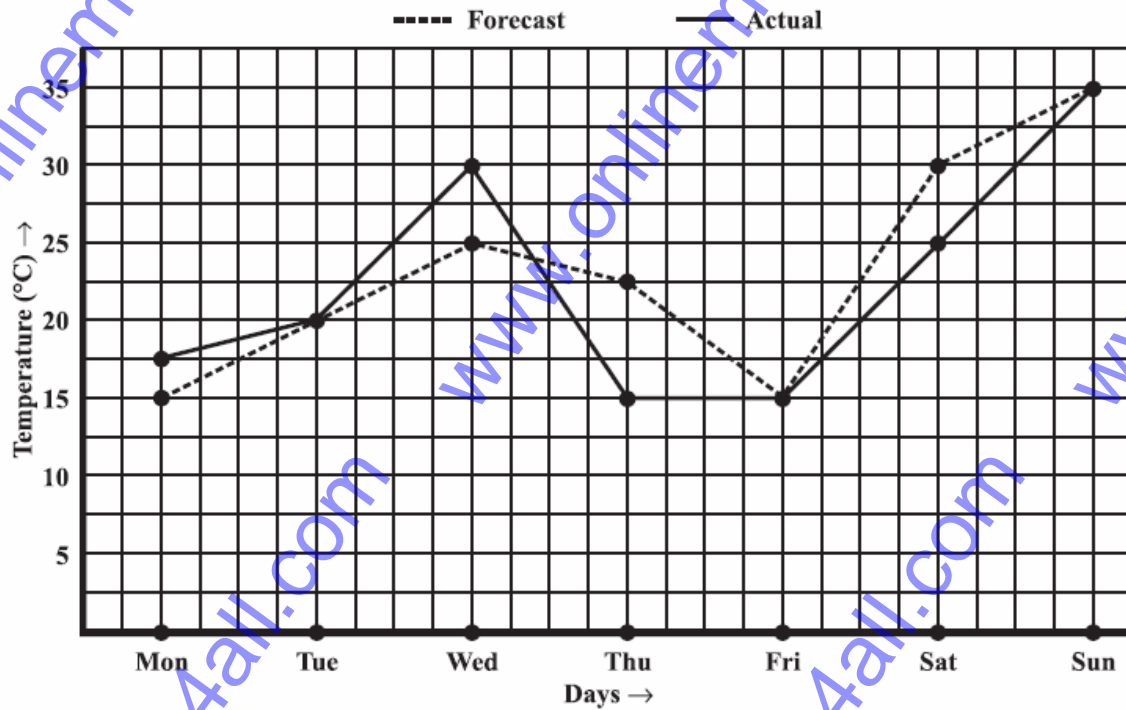
(c) 45 km

(b) 47 km

(d) 43 km



38. The following graph shows the temperature forecast and the actual temperature for each day of a week.



On which day did the actual temperature differ the most from the forecast temperature?

- (a) Wednesday
- (b) Tuesday
- (c) Sunday
- (d) Thursday

39. Find A and B in the following addition.

$$\begin{array}{r} A \\ + A \\ + A \\ \hline B A \\ \hline \end{array}$$

(a)  $A=1, B=3$

(c)  $A=3, B=1$

(b)  $A=5, B=1$

(d)  $A=1, B=5$

40. If  $21y5$  is a multiple of 9, where  $y$  is a digit, what is the value of  $y$ ?

(a) 1

(c) 2

(b) 0

(d) 3

41. When water freezes its volume increases by 4%. What volume of water is required to make  $221 \text{ cm}^3$  of ice?

(a)  $(625/2) \text{ cm}^3$

(c)  $(425/2) \text{ cm}^3$

(b)  $(525/2) \text{ cm}^3$

(d)  $(325/2) \text{ cm}^3$

42. The area of regular hexagon is  $24\sqrt{3}$  sq.cm. Find its perimeter.

(a) 18 cm

(c) 19 cm

(b) 20 cm

(d) 24 cm

43. If  $a^2+b^2+c^2=80$  and  $ab+bc+ca=32$ . Find the value of  $(a+b+c)$ .

(a) 18

(c) 5

(b) 12

(d) 8

44. There is a road beside a river. Two friends started from a place A, moved to a church situated at another place B and then returned to A again. One of them moves on a cycle at a speed of 12 km/hr, while the other sails on a boat at a speed of 10 km/hr. If the river flows at the speed of 4 km/hr, what is the average speed of the cyclist and boat sailor?

(a) 12km/hr, 8.4 km/hr

(c) 12km/hr, 4.8 km/hr

(b) 21 km/hr, 8.4 km/hr

(d) 12km/hr, 4.8 km/hr

45. Two pipes can fill a cistern in 14 hours and 16 hours respectively. The pipes are opened simultaneously and it is found that due to leakage in the bottom it took 32 minutes more to fill the cistern. When the cistern is full, in what time will the leak empty it?

(a) 160 hours

(c) 210 hours

(b) 102 hours

(d) 232 hours

46. Worker A takes 8 hours to do a job. Worker B takes 10 hours to do the same job. How long should it take both A and B, working together but independently, to do the same job?

(a)  $37/9$  days

(c)  $41/9$  days

(b)  $40/9$  days

(d)  $43/9$  days

47. Alfred started a business investing \$45000. After three months, Peter joined him with a capital of \$60000. After another six months, Ronald joined them with a capital of \$90000. At the end of the year, they made a profit of \$16500. Find the share of Ronald.

(a) \$2200

(c) \$3300

(b) \$4400

(d) \$5500

48. If  $x:y = 3:4$ , find  $(4x+5y):(5x-2y)$

(a)  $36/7$

(c)  $17/7$

(b)  $32/7$

(d)  $29/7$

49. Find the angle between the hour hand and the minute hand of a clock when the time is 3.25.

(a)  $(95/2)^\circ$

(c)  $(65/2)^\circ$

(b)  $(85/2)^\circ$

(d)  $(75/2)^\circ$

50. How many words can be formed by using all the letters of the word "DAUGHTER" so that the vowels always come together?

(a) 1040

(c) 5040

(b) 2240

(d) 4320

Answers

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