

# OLYMPIAD Mock Test

# 4

Name : VI

Number of Questions : 50

Max. Marks : 50

Time : 2 Hours

There is no negative marking in the test.

- Find the product of  $(2x + 4y)(3x - 2y)$ .  
(a)  $6x^2 + 8xy - 8y^2$   
(b)  $x^2 - 8xy - 8y^2$   
(c)  $8x^2 - xy - 8y^2$   
(d) All of these
- The sum of two integers is  $-396$ . If one of them is  $64$ , determine the other.  
(a)  $-560$                       (b)  $-460$   
(c)  $460$                         (d)  $540$
- Find the side of the square whose perimeter is  $80$  cm.  
(a)  $20$  cm                      (b)  $30$  cm  
(c)  $32$  cm                      (d)  $40$  cm
- Which of the following statements is not true?  
(a) The HCF of two distinct prime numbers is  $1$   
(b) The HCF of two co-prime numbers is  $1$   
(c) The HCF of two consecutive even numbers is  $2$   
(d) The HCF of an even and an odd number is even.
- The average speed of a truck is  $80$  km/hr, the total distance covered in  $t$  hours is  $240$  km, then  $t$  is .....  
(a)  $3$  hours                      (b)  $4$  hours  
(c)  $\frac{1}{2}$  hours                      (d)  $4\frac{1}{2}$  hours
- Find the greatest number that will divide  $328$ ,  $436$  and  $544$  leaving remainder  $7$ ,  $8$  and  $9$  respectively.  
(a)  $205$                               (b)  $157$   
(c)  $107$                               (d)  $207$

7. Which of the following would come in place of the question mark (?) in the following letter number series ?  
1, 5, 7, 14, 18, 20, 40, 44, 46, ?  
(a) 48 (b) 50  
(c) 52 (d) 92
8. Read the statements given below carefully and choose the correct answer.
- (i) If  $a = -2$  and  $b = 5$  then out of  $2a + 3b$ ,  $2b - a$ ,  $a - b$  and  $a^2 - b^2$  only  $a^2 - b^2$  has the least value.
- (ii) Anshi celebrated her 16<sup>th</sup> birthday  $x$  years ago. She would be  $(16 + x + z)$  years old in  $z$  year time.
- (a) (i) is true while (ii) is false.  
(b) (i) is false while (ii) is true.  
(c) (i) and (ii), both are true.  
(d) (i) and (ii), both are false.
9. Smallest four digit number is divided by smallest prime number. Find the predecessor of the quotient.  
(a) 500 (b) 499  
(c) 501 (d) 599
10. Find the value of  $-12 - [(-15) + (-2) - 3]$ .  
(a) 14 (b) -8  
(c) 10 (d) 8
11. The length, breadth and height of a room are 8 m 25 cm, 6 m 75 cm and 4 m 50 cm, respectively. Determine the longest tape which can measure the three dimensions of the room exactly.  
(a) 12 cm (b) 75 cm  
(c) 90 cm (d) 140 cm
12. An office opens at 9.00 a.m. and closes at 5.30 p.m. With a lunch interval of 30 minutes, what is the ratio of lunch interval to the total period in the office?  
(a) 1 : 19 (b) 2 : 19  
(c) 1 : 17 (d) 2 : 17
13. A crate contains 400 eggs, 8 dozen eggs were found spoiled. Find the percentage of good eggs in the crate.  
(a) 24% (b) 36%  
(c) 52% (d) 76%
14. The greatest number which always divides the product of the predecessor and successor of an odd natural number other than 1, is  
(a) 6 (b) 4  
(c) 16 (d) 8

M-28

15. What is the angle between the 2 hands of the clock at 8:24 pm?

- (a)  $100^\circ$                       (b)  $107^\circ$   
 (c)  $106^\circ$                       (d)  $108^\circ$

16. What fraction will come in place of \*?

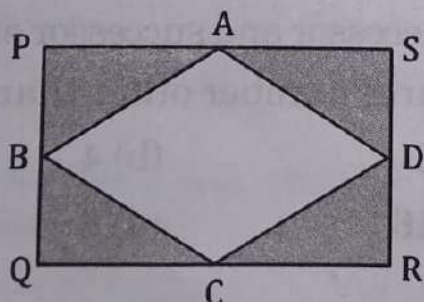
$$\frac{1}{4}, \frac{3}{16}, \frac{5}{36}, \frac{7}{64}, *, \frac{11}{144}$$

- (a)  $\frac{8}{18}$                               (b)  $\frac{9}{100}$   
 (c)  $\frac{10}{81}$                               (d)  $\frac{9}{121}$

17. The perimeter of a rectangle is 36 cm. The measure of its length and breadth are natural numbers. How many such rectangles are possible?

- (a) 2                                  (b) 8  
 (c) 9                                  (d) 18

18. In the adjoining figure, A, B, C and D are mid points of PS, PQ, QR, RS respectively. The length and breadth of rectangle PQRS are 25 cm and 18 cm respectively. Find the area of shaded portion.



(a) 450 sq. cm                      (b) 112.5 sq. cm

(c) 350 sq. cm                      (d) 225 sq. cm

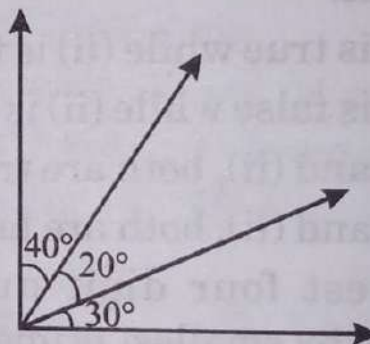
19. In which subject did Rajeev obtain the highest percentage? Maths : 325 out of 500, English : 240 out of 400, Geography : 84 out of 150, Science : 132 out of 200.

- (a) Maths                              (b) English  
 (c) Science                              (d) Geography

20. A rectangular field is 90 m by 70 m. A man walks round it at the rate of 4 km per hour. What time will he take in making 5 rounds?

- (a) 20 minutes                      (b) 24 minutes  
 (c) 34 minutes                      (d) 42 minutes

21. The number of angles in Fig. is



- (a) 3                                  (b) 4  
 (c) 5                                  (d) 6

22. One of the angles of a triangle is equal to the sum of the other two. What is the angle?

- (a)  $60^\circ$                               (b)  $80^\circ$   
 (c)  $90^\circ$                               (d)  $100^\circ$

23. Consider the following statements.

- (i) Every number is a factor of itself.
- (ii) Every number is a multiple of itself.

Which statement is the correct?

- (a) Only (i)
  - (b) Only (ii)
  - (c) Both (i) and (ii)
  - (d) Neither (i) nor (ii)
24. LCM of two numbers is 180. Then which of the following is not the HCF of the numbers?
- (a) 45
  - (b) 60
  - (c) 75
  - (d) 90
25. Ajay saves 20% of his monthly income. If he saves ₹5100 per month, what is his monthly income?
- (a) ₹25500
  - (b) ₹42000
  - (c) ₹32750
  - (d) ₹54000
26. From a square sheet of paper a circle of maximum possible size is cut. The area of the remaining portion is

- (a) Equal to  $\frac{1}{4}$  the area of the circle.
- (b) Greater than  $\frac{1}{4}$  the area of the circle
- (c) Less than  $\frac{1}{4}$  the area of the circle
- (d) None of these

27. What percent of 6.5 litres is 130 ml

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

28. Simplify :  $80 - [20 - \{175 \div 5 - (28 - 16 \div 4) \div 6\}]$

- (a) 96
- (b) - 52
- (c) 91
- (d) 44

29. The age ratio of Peter and his father is 2 : 5. Find the age of Peter if his fathers age is 40 years?

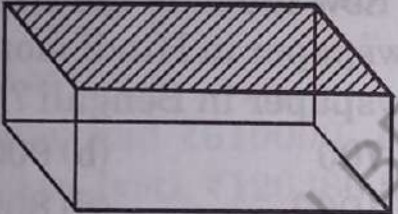
- (a) 17
- (b) 16
- (c) 18
- (d) 19

30. The simple interest on a certain sum at the rate of 20% p.a. for a period of 8 years amounts to ₹10960. What is the original sum of money?

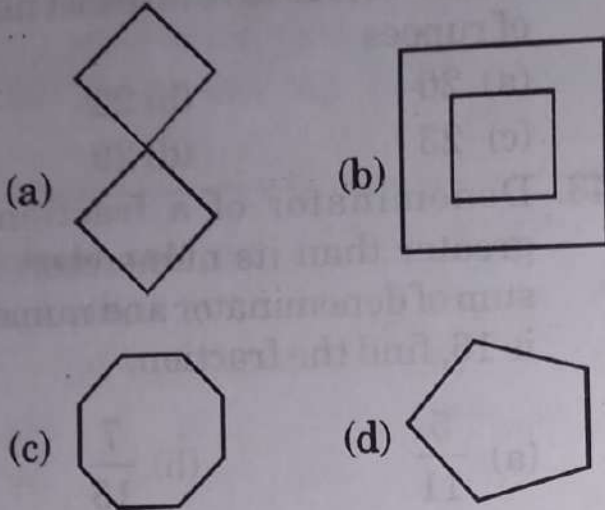
- (a) ₹6500
- (b) ₹7800
- (c) ₹6850
- (d) ₹8000

31. **Column-I****Column-II**

- (A) The length and width of a tape are 2 m and 28 cm, ratio of length and breadth is (p) 5 : 2
- (B) Ratio of 60 hrs to 600 min is (q) 6 : 1
- (C) Simplest form of the ratio 125 : is (r) 50 : 725
- (D) In the word ENGLISH the ratio of number of consonants to number of vowels (s) 5 : 1
- (a) A - p; B - r; C - q; D - s (b) A - r; B - q; C - s; D - p
- (c) A - q; B - p; C - r; D - s (d) A - s; B - r; C - p; D - q
32. The simple interest on ₹ 500 at 6% p.a. for 1 year is Sachin sell the remaining bananas so that he makes a profit of 20%?
- (a) ₹45 (b) ₹30 (a) ₹3.50 (b) ₹3.75
- (c) ₹40 (d) ₹50 (c) ₹4 (d) ₹4.5
33. The HCF and LCM of two numbers are 13 and 1989 respectively. If one of the numbers is 117, determine the other. 36. Multiply  $3a + 2b$  and  $5a + 7b$ .
- (a) 532 (b) 369 (a)  $6a^2 + 31ab + 9b^2$
- (c) 156 (d) 221 (b)  $4a^2 + 26ab + 9b^2$
34. Divide 0.0211788 by 0.333 (c)  $21a^2 + 17ab + 49b^2$
- (a) 63.6 (b) 6.36 (d)  $15a^2 + 31ab + 14b^2$
- (c) 0.636 (d) 0.0636
35. Sachin purchased 50 dozen bananas for ₹ 150. Five dozen bananas could not be sold because they were rotten. At what price per dozen should 37. Which of the following would come in place of the question mark (?) in the following letter number series?
- $\frac{1}{81}, \frac{1}{54}, \frac{1}{36}, \frac{1}{24}, ?$
- (a)  $\frac{1}{52}$  (b)  $\frac{1}{9}$
- (c)  $\frac{1}{16}$  (d)  $\frac{1}{18}$

38. A tile measures  $10\text{ cm} \times 10\text{ cm}$ . How many such tiles are required to cover a wall  $4\text{ m} \times 2.5\text{ m}$ ?
- (a) 800 (b) 1000  
(c) 1120 (d) 1260
39. A clock is so placed that at 12 noon its minute hand points towards north-east. In which direction does its hour hand point at 1:30 pm?
- (a) North (b) South  
(c) East (d) West
40. The area of the shaded face of the cuboid is  $32\text{ cm}^2$ . Its height is  $4\text{ cm}$ . What is its volume?
- 
- (a)  $28\text{ cm}^3$  (b)  $36\text{ cm}^3$   
(c)  $128\text{ cm}^3$  (d)  $136\text{ cm}^3$
41. If A and B are different integers, both divisible by 5, then which of the following is not necessarily true?
- (a)  $(A + B)$  is divisible by 5.  
(b)  $(A + B)$  is divisible by 10.  
(c)  $(A - B)$  is divisible by 5.  
(d)  $A^2 + B^2$  is divisible by 5.
42. A boy saves ₹4.65 daily. Find the least number of days in which he will be able to save an exact number of rupees
- (a) 20 (b) 22  
(c) 23 (d) 29
43. Denominator of a fraction is 6 greater than its numerator. If the sum of denominator and numerator is 16, find the fraction.
- (a)  $\frac{5}{11}$  (b)  $\frac{7}{13}$   
(c)  $\frac{8}{14}$  (d)  $\frac{2}{8}$
44. First, second and third terms of a proportion are respectively 20, 18, 40. Find its fourth terms.
- (a) 72 (b) 36  
(c) 80 (d) 27
45. How many envelopes can be made out of a sheet of paper  $125\text{ cm}$  by  $85\text{ cm}$  supposing each envelope requires a piece of paper of size  $17\text{ cm}$  by  $5\text{ cm}$ ?
- (a) 75 (b) 110  
(c) 125 (d) 206

46. Which of the following figure has 4 lines of symmetry?

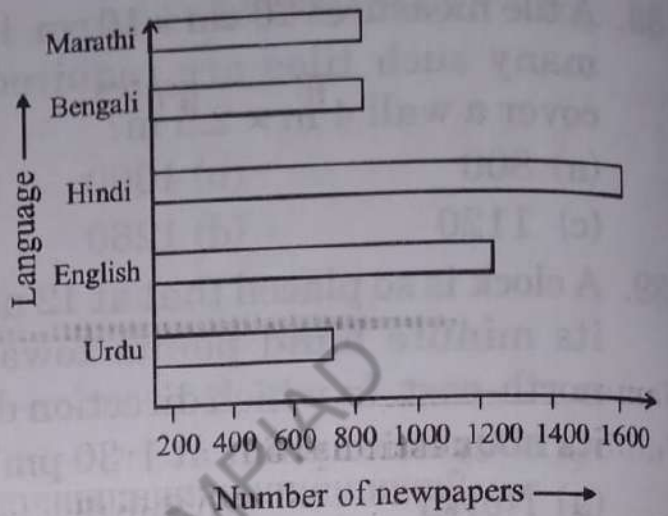


47. Average age of five children is 8 yrs. 4 months.

If the average age of four children is 7 yrs. 10 months, the age of fifth child is \_\_\_\_\_.

- (a) 9 yrs. 8 months
- (b) 7 yrs. 5 months
- (c) 8 yrs. 6 months
- (d) 10 yrs. 4 months

**DIRECTIONS (Qs. 48 to 50):** The bar graph given below represents the circulation of newspaper in different languages in a city. Study bar graph and answer the following questions.



48. What is the circulation of English newspaper?

- (a) 5000
- (b) 2000
- (c) 1200
- (d) 4000

49. By how much is the circulation of newspaper in Hindi more than the newspaper in Bengali ?

- (a) 700
- (b) 900
- (c) 1000
- (d) 800

50. Name the two languages in which circulation of newspaper is the same

- (a) Marathi and Bengali
- (b) Marathi and Urdu
- (c) Hindi and English
- (d) Urdu and English

**MOCK TEST-4****ANSWERS KEY**

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



## Hints & Explanations

1. (a)  $(2x + 4y)(3x - 2y)$   
 $= 6x^2 - 4xy + 12xy - 8y^2$   
 $= 6x^2 + 8xy - 8y^2$

2. (b) Other integer = Sum of the integers - given integer  
 $= (-396) - 64 = (-396) + (-64)$   
 $= -460.$

3. (a) One side of a square  
 $= \frac{1}{4}$  (perimeter of the square)

So, side of the square whose perimeter is 80 cm

$$= \frac{1}{4} \times 80 \text{ cm} = 20 \text{ cm.}$$

4. (d) The HCF of an even and an odd number can be either even or odd.

5. (a) Time =  $\frac{240 \text{ km}}{80 \text{ km/hr}} = 3 \text{ hours}$

6. (c) To find the greatest number that will divide 328, 436 and 544 leaving remainder 7, 8 and 9, we find H.C.F. of  $328 - 7$ ,  $436 - 8$  and  $544 - 9$ , i.e, 321, 428 and 535.

Using division method we calculate the H.C.F. of 321 and 428.

$$\begin{array}{r} 321 \overline{) 428} ( 1 \\ \underline{-321} \\ 107 \end{array}$$

$$\begin{array}{r} 107 \overline{) 321} ( 3 \\ \underline{-321} \\ \hline \end{array}$$

H.C.F. of (321, 428) = 107,  
 Now, we will calculate H.C.F. of 107 and 535.

$$\begin{array}{r} 107 \overline{) 535} ( 5 \\ \underline{-535} \\ \hline \end{array}$$

So H.C.F. of (321, 428 and 535) = 107.

107 is the greatest number that will divide 328, 436 and 544 leaving remainder 7, 8 and 9 respectively.

7. (d) The sequence follows + 4, + 2, × 2. So, the question mark (?) will be replaced by 92.

8. (c) **Statement (i) :**  
 $2a + 3b = 2(-2) + 3(5)$

$$= -4 + 15$$

$$= 11$$

$$2b - a = 2 \times 5 - (-2)$$

$$= 10 + 2$$

$$= 12$$

$$a - b = -2 - 5$$

$$= -7$$

And,

$$a^2 - b^2 = (-2)^2 - (5)^2$$

$$= 4 - 25$$

$$= -21$$

$$a^2 - b^2 = -21 \text{ is least value.}$$

**Statement (ii) :**

Anshi's present age (16 + x) years

After z years, Anshi will be

16 + x + z years old.

9. (b)  $\frac{\text{smallest four digit number}}{\text{smallest prime number}}$

$$= \frac{1000}{2} = 500$$

Predecessor of the quotient

$$= 500 - 1 = 499$$

10. (d)  $-12 - [(-15) + (-2) - 3]$   
 $= -12 - [(-15) + (-2) + (-3)]$   
 $= -12 - [(-20)] = -12 + 20 = 8.$

11. (b) Length = 8 m 25 cm = 825 cm  
 Breadth = 6 m 75 cm = 675 cm  
 Height = 4 m 50 cm = 450 cm  
 The required longest tape which can measure the three dimensions of the room exactly = HCF (825, 675, 450)  
 = 75 cm

12. (c) Lunch interval = 30 minutes,  
 5 : 30 p.m. = 17 : 30 hours  
 Total period in office = (17 : 30 - 9 : 00) hours  
 = 8 hours 30 minutes  
 = [(8 × 60 + 30)] minutes = 510 minutes  
 $\therefore$  Lunch interval : Total period in office  
 = 30 min : 510 min  
 =  $\frac{30}{510} = \frac{1}{17}$  or 1 : 17.

13. (d) Total number of eggs = 400  
 Number of spoiled eggs = 8 × 12 = 96  
 Number of good eggs left = 400 - 96 = 304.  
 $\therefore$  Percentage of good eggs  
 =  $\frac{304}{400} \times 100 = 76$

Thus, there were 76% of good eggs in the crate.

14. (b) 4 is the greatest number by which the product of the predecessor and successor of an odd natural number other than 1 is divided.

15. (d) Required angle  $30^\circ\text{H} - 5.5^\circ\text{M}$   
 =  $240 - 24 \times (11/2)$   
 =  $240 - 132$   
 =  $108^\circ$ .

16. (b) In given series, numerators form a series of odd numbers

while denominators form a series of squares of even numbers.

$$\frac{1}{4} = \frac{1}{2^2}; \frac{3}{16} = \frac{3}{4^2}; \frac{5}{36} = \frac{5}{6^2};$$

$$\frac{7}{64} = \frac{7}{8^2}; \frac{11}{144} = \frac{11}{12^2}$$

Fraction in place of \*

$$= \frac{9}{10^2} = \frac{9}{100}$$

17. (c) Let L and B be length and breadth of rectangle respectively.

$$\text{Then, } 2(L + B) = 36$$

$$L + B = \frac{36}{2} = 18$$

We have to find number of pairs of natural numbers whose sum is 18. These are (1, 17), (2, 16), (3, 15), (4, 14), (5, 13), (6, 12), (7, 11), (8, 10), (9, 9), Which are 9 in number.

18 (d) The shaded portion comprises of four equal triangles

with base and height  $\frac{25}{2}$  cm

$$\text{and } \frac{18}{2} \text{ cm} = 9 \text{ cm}$$

Area of shaded portion

$$= 4 \left[ \frac{1}{2} \times \text{base} \times \text{height} \right]$$

$$= 4 \times \frac{1}{2} \times \frac{25}{2} \times 9 = 225 \text{ sq. cm}$$

19. (c) Percentage in math

$$= \left( \frac{325}{500} \times 100 \right) \% = 65\%$$

Percentage in english

$$= \left( \frac{240}{400} \times 100 \right) \% = 60\%$$

Percentage in geography

$$= \left( \frac{84}{150} \times 100 \right) \% = 56\%$$

Percentage in science

$$= \left( \frac{132}{200} \times 100 \right) \% = 66\%$$

$\therefore$  Rajeev obtained the highest percentage in science.

20. (b) Distance covered in one round  
 = Perimeter of the field =  $2(90 + 70) \text{ m} = 2 \times 160 \text{ m}$   
 $= 320 \text{ m}$

$\therefore$  Distance covered in 5 rounds  
 =  $320 \text{ m} \times 5 = 1600 \text{ m}$

$\therefore$  The man walks 4 km (=  $4 \times 1000 \text{ m}$ )

= 4000 m in 1 hour

$\therefore$  The man walks 1600 m in

$$\frac{1}{4000} \times 1600 \text{ hour}$$

$$= \frac{2}{5} \text{ hour} = \frac{2}{5} \times 60 \text{ minutes}$$

$$= 24 \text{ minutes}$$

21. (d) There are 6 angles in the figure.

22. (c) Let one of the angles be of measure  $x$  in degrees and the other two  $y$  and  $z$ . Then, we are given that  $x = y + z$ .

By angle sum property, we have  $x + y + z = 180$ .

$$\Rightarrow x + x = 180^\circ$$

$$\Rightarrow 2x = 180^\circ$$

$$\Rightarrow x = 90^\circ$$

Hence, the required angle is of measure  $90^\circ$ .

23. (c) Both (i) and (ii)

24. (c) In case of any two or more numbers their HCF will always be the factor of their LCM. But 75 is not a factor of 180.

$\therefore$  75 can not be HCF of the numbers.

25. (a) 20% of income = ₹5100

$$\text{i.e., } \frac{20}{100} \text{ of monthly income}$$

$$= ₹5100$$

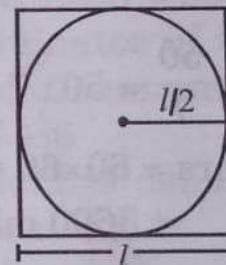
$\therefore$  Monthly income

$$= ₹5100 \times \frac{100}{20}$$

$$= ₹(5100 \times 5) = ₹25500.$$

26. (c) Remaining area

$$= l^2 - \frac{\pi l^2}{4} = \frac{l^2(4 - \pi)}{4} < \frac{l^2}{4}$$



27. (a) Let  $x\%$  of 6.5 litres is 130 ml

$$\frac{x}{100} \times 6.5 \times 1000 = 130$$

$$x = \frac{13}{6.5} = 2\%$$

28. (c)  $80 - [20 - \{175 \div 5 - (28 - 16 \div 4) \div 6\}]$

$$= 80 - [20 - \{35 - (28 - 4) \div 6\}]$$

$$= 80 - [20 - \{35 - 24 \div 6\}]$$

$$= 80 - [20 - \{35 - 4\}]$$

$$= 80 - [20 - 31]$$

$$= 80 - (-11) = 80 + 11 = 91$$

$$29. (b) \frac{\text{Peter's age}}{40} = \frac{2}{5}$$

Therefore, age of Peter

$$= \frac{40 \times 2}{5} = \frac{80}{5} = 16 \text{ years}$$

30. (c) Let the original sum be ₹x.

$$S.I = \frac{P \times R \times T}{100} = \frac{x \times R \times T}{100}$$

$$x = \frac{100 \times S.I}{R \times T}$$

$$= \frac{100 \times 10960}{20 \times 8}$$

$$= ₹6850$$

31. (b) A : length = 2 m = 200 cm

breadth = 28 cm

$$\text{Ratio} = 200 : 28 = \frac{200}{28} = \frac{100}{14}$$

$$= \frac{50}{7} = 50 : 7$$

$$B : 60 \text{ hrs} = 60 \times 60 \text{ min} \\ = 3600 \text{ min}$$

$$3600 : 600 = \frac{3600}{600} = \frac{6}{1} = 6 : 1$$

$$C : 125 : 25 = \frac{125}{25} = \frac{5}{1} = 5 : 1$$

D : Number of consonant  
= 5

= (N, G, L, S, H)

Number of vowels = 2 = (E, I)

Ratio of no. of consonants to the  
no. of vowels = 5 : 2

$$32. (b) S.I = \frac{500 \times 6 \times 1}{100} = ₹30$$

33. (d) Product of two numbers

$$= \text{HCF} \times \text{LCM}$$

Other number

$$= \frac{\text{HCF} \times \text{LCM}}{1^{\text{st}} \text{ number}} = \frac{13 \times 1989}{117}$$

$$= 221$$

34. (d)  $0.0211788 \div 0.333$  is the same  
as

$$\begin{array}{r} \downarrow \\ 0.21.1788 \quad 333. \\ \text{i.e., } 21.1788 \quad 333 \end{array} \quad \begin{array}{|l} \hline \text{Drop this} \\ \text{zero as it is} \\ \text{superfluous} \\ \hline \end{array}$$

$$\begin{array}{r} 0.0636 \\ 333 \overline{) 21.1788} \\ \underline{19988} \quad \downarrow \\ 1198 \quad \downarrow \\ \underline{999} \quad \downarrow \\ 1998 \\ \underline{1998} \\ 0 \end{array}$$

35. (c) C. P. of 50 dozen bananas  
= ₹150.

Number of rotten bananas

= 5 dozen

∴ Bananas left

= 50 dozen - 5 dozen

= 45 dozen

Profit = 20% of ₹150

$$= \frac{20}{100} \times ₹150 = ₹30$$

∴ S.P. of 45 dozen bananas

$$= ₹150 + ₹30 = ₹180$$

∴ S.P. of 1 dozen bananas

$$= ₹ \frac{180}{45} = ₹4.$$

$$29. (b) \frac{\text{Peter's age}}{40} = \frac{2}{5}$$

Therefore, age of Peter

$$= \frac{40 \times 2}{5} = \frac{80}{5} = 16 \text{ years}$$

30. (c) Let the original sum be ₹x.

$$S.I = \frac{P \times R \times T}{100} = \frac{x \times R \times T}{100}$$

$$x = \frac{100 \times S.I}{R \times T}$$

$$= \frac{100 \times 10960}{20 \times 8}$$

$$= ₹6850$$

31. (b) A : length = 2 m = 200 cm

breadth = 28 cm

$$\text{Ratio} = 200 : 28 = \frac{200}{28} = \frac{100}{14}$$

$$= \frac{50}{7} = 50 : 7$$

$$B : 60 \text{ hrs} = 60 \times 60 \text{ min} \\ = 3600 \text{ min}$$

$$3600 : 600 = \frac{3600}{600} = \frac{6}{1} = 6 : 1$$

$$C : 125 : 25 = \frac{125}{25} = \frac{5}{1} = 5 : 1$$

$$D : \text{Number of consonant} \\ = 5$$

$$= (N, G, L, S, H)$$

$$\text{Number of vowels} = 2 = (E, I)$$

$$\text{Ratio of no. of consonants to the} \\ \text{no. of vowels} = 5 : 2$$

$$32. (b) S.I = \frac{500 \times 6 \times 1}{100} = ₹30$$

33. (d) Product of two numbers

$$= \text{HCF} \times \text{LCM}$$

Other number

$$= \frac{\text{HCF} \times \text{LCM}}{1^{\text{st}} \text{ number}} = \frac{13 \times 1989}{117}$$

$$= 221$$

34. (d)  $0.0211788 \div 0.333$  is the same as

$$\begin{array}{r} \downarrow \\ 0.21.1788 \quad 333. \\ \text{i.e., } 21.1788 \quad 333 \end{array} \quad \begin{array}{|l} \hline \text{Drop this} \\ \text{zero as it is} \\ \text{superfluous} \\ \hline \end{array}$$

$$\begin{array}{r} 0.0636 \\ 333 \overline{) 21.1788} \\ \underline{19988} \phantom{0} \\ 1198 \phantom{0} \\ \underline{999} \phantom{0} \\ 1998 \\ \underline{1998} \\ 0 \end{array}$$

35. (c) C. P. of 50 dozen bananas = ₹150.

Number of rotten bananas

= 5 dozen

∴ Bananas left

= 50 dozen - 5 dozen

= 45 dozen

Profit = 20% of ₹150

$$= \frac{20}{100} \times ₹150 = ₹30$$

∴ S.P. of 45 dozen bananas

$$= ₹150 + ₹30 = ₹180$$

∴ S.P. of 1 dozen bananas

$$= ₹ \frac{180}{45} = ₹4.$$

36. (d)  $(3a + 2b)(5a + 7b)$   
 $= 3a(5a + 7b) + 2b(5a + 7b)$   
 $= 15a^2 + 21ab + 10ab + 14b^2$   
 $= 15a^2 + 31ab + 14b^2.$

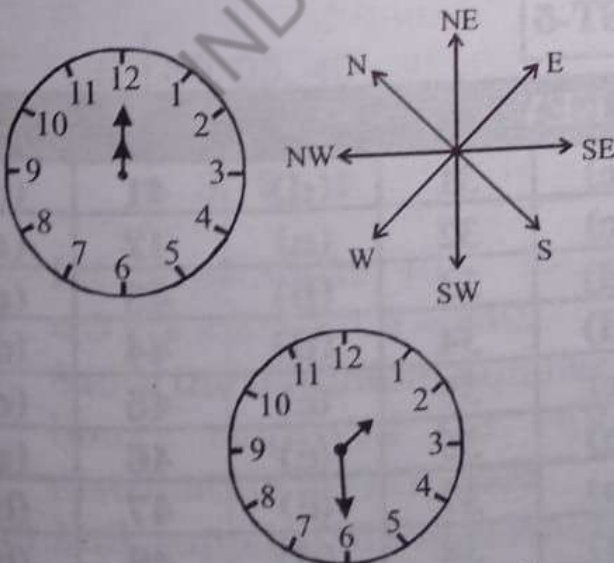
37. (c) Multiply each term by  $\frac{3}{2}$  to get the next term. Then,

$$\frac{1}{24} \times \frac{3}{2} = \frac{1}{16}$$

38. (b) Area of one tile  
 $= 10 \text{ cm} \times 10 \text{ cm} = 100 \text{ cm}^2.$   
 Area of wall  $= 4 \text{ m} \times 2.5 \text{ m}$   
 $= 400 \text{ cm} \times 250 \text{ cm}$   
 $= 1,00,000 \text{ cm}^2.$

$\therefore$  Number of tiles required  
 $= \frac{\text{Area of wall}}{\text{Area of one tile}} = \frac{100000}{100}$   
 $= 1000.$

39. (c) The positions of the minute and hour hands at 12 noon and 1:30 p.m. are as shown in the diagram. Comparing with direction figure, we see that the hour hand at 1:30 p.m. points towards the East.



40. (c) Shaded face is a rectangle  
 Area of shaded face  $= 32$   
 $\Rightarrow l \times b = 32$

Now,  $h = 4 \text{ cm}.$

$\therefore$  Volume  $= l \times b \times h$   
 $= 32 \times 4$   
 $= 128 \text{ cm}^3.$

41. (b)

42. (a) ₹4.65 = 465 paise

The number of paise which is an exact number of rupees will be a multiple of 100. By the condition of the equation, the paise in the number of rupees saved by the boy will be a multiple of 465.

$$\begin{array}{r} 5 \overline{) 100, 465} \\ \underline{20, 93} \end{array}$$

$\therefore$  L.C.M. of 100 and 465  
 $= 5 \times 20 \times 93 = 9300$

$\therefore$  The boy save 9300 paise.

$\therefore$  The required number of days  
 $= 9300 \div 465 = 20.$

43. (a) Denominator of fraction is 6 greater than numerator.

$$D = N + 6$$

The sum of denominator and numerator is 16.

$$D + N = 16$$

Add both sides 6, then

$$D + N + 6 = 16 + 6$$

$$D + D = 22$$

$$2D = 22$$

$$D = 11$$

Since,  $D + N = 16$

$$11 + N = 16$$

$$N = 16 - 11 = 5$$

Then, denominator = 11 and numerator = 5.

Hence, fraction is  $\frac{5}{11}.$

44. (b) For a given proportion.

Product of extremes = Product of means

i.e., First term  $\times$  Fourth term

= Second term  $\times$  Third term

$\therefore$  Fourth term

$$= \frac{\text{2nd term} \times \text{3rd term}}{\text{1st term}}$$

$$= \frac{18 \times 40}{20} = 36$$

45. (c) Area of the sheet

$$= (125 \times 85) \text{ cm}^2.$$

Area of the paper required for one envelope

$$= (17 \times 5) \text{ cm}^2.$$

$\therefore$  No. of envelopes

$$= \frac{\text{Area of the sheet}}{\text{Area of piece of paper required for 1 envelope}}$$

$\therefore$  No. of envelopes

$$= \frac{125 \times 85}{17 \times 5} = 25 \times 5 = 125$$

46. (b) Square has 4 lines of symmetry.

47. (d) Average age of 5 children = 8 yrs 4 months

Total age of 5 children

$$= 5 \times (8 \text{ yrs } 4 \text{ months})$$

$$= 40 \text{ yrs } 20 \text{ months}$$

$$= 41 \text{ yrs } 8 \text{ months}$$

Average age of 4 children

$$= 7 \text{ yrs. } 10 \text{ months}$$

Total age of 4 children

$$= 4 \times (7 \text{ yrs } 10 \text{ months})$$

$$= 31 \text{ yrs } 4 \text{ months}$$

$\therefore$  Age of fifth child

$$= 41 \text{ yrs } 8 \text{ months} - 31 \text{ yrs } 4 \text{ months}$$

$$= 10 \text{ yrs } 4 \text{ months}$$

48. (c) The circulation of English new paper in 1200.

49. (d) The circulation of Hindi newspaper is 1600. The circulation of Bangali news paper is 800. Then, the circulation of Hindi news paper is more then circulaion of Bengali news paper by

$$1600 - 800$$

$$= 800$$

50. (a) The two langueses in which circulation of news paper is same are Marathi and Bengali.