

Class: VI
Subject: Mathematics
Topic:
No. of Questions: 30
Duration: 90 Min
Maximum Marks: 90

1) The simplest form of fraction of 1.35 is

(A) $\frac{27}{20}$

(B) $\frac{29}{20}$

(C) $\frac{31}{25}$

(D) $\frac{23}{20}$

SOL. (A)

$$1.35 = \frac{135}{100}$$

$$= \frac{27 \times 5}{20 \times 5}$$

$$= \frac{27}{20}$$

2) Which of the following decimal has highest value?

(A) 0.5

(B) 0.6

(C) 0.7

(D) 0.2

SOL. (C)

Out of the four the one-tenth part of 0.7 is the greatest. Hence, 0.7 has the highest value.

3) Which of the following is an example of primary data?

- (A) Data collected from a group of 40 students
- (B) Data collected from world wide web
- (C) Data collected from a school records
- (D) Data collected from DISE

SOL. (A)

Data collected from a group of 40 students is an example of primary data.

4) If p is the side length of square then its area is?

- (A) p^2
- (B) p^3
- (C) $4p$
- (D) $2p$

SOL. (A)

Area of a square = side \times side = $p \times p = p^2$

5) 8 taken away from the product of x and y is?

- (A) $(x + y) - 8$
- (B) $(x - y) - 8$
- (C) $(xy) - 8$
- (D) $\left(\frac{x}{y}\right) - 8$

SOL. (C)

8 taken away from the product of x and y is

Product of x and $y = x \times y = xy$

Given is taken from the product ' xy '

Hence the algebraic expression is $(xy) - 8$

6) Which of the following ratio is not equivalent to 50:90?

- (A) 5 : 9
- (B) 15 : 19
- (C) 10 : 18
- (D) 25 : 45

SOL. (B)

$$50 : 90 \neq 15 : 19$$

7) _____ Triangle has exactly one line of symmetry?

- (A) An Equilateral
- (B) A scalene
- (C) An isosceles
- (D) A Right angled

SOL. (C)

An isosceles triangle has exactly one line of symmetry

8) A _____ is used to draw and measure angles?

- (A) protractor
- (B) ruler
- (C) set square
- (D) divider

SOL. (A)

A protractor is used to draw and measure angles

SECTION

9) Alex purchased a book, a pen and a notebook for Rs165.35, Rs72 and Rs14.85 respectively. How much money will he have to pay to the shopkeeper for these items?

SOL. Cost of a book = Rs165.35

Cost of a pen = Rs72.00

Cost of a notebook = Rs14.85

Total Cost =

RS165.35

+ RS 72.00

+ RS 14.85

RS 252.20

Total money to be paid by Alex = Rs252.20

10) Classify the following data as primary or secondary.

(a) Classifying date of birth of different students from class attendance register.

(b) Collecting Name, roll number information from each individual.

Sol. (a) Classifying date of birth of different students from class attendance register as secondary

Data

(b) Collecting Name, roll number information from each individual as Primary Data

11) Perimeter of a regular pentagon is 25cm. find the length of its one side?

Sol. We know that a regular pentagon has 5 sides, so we can divide the perimeter by 5 to get the measure of one side.

One side of pentagon is

$$= 25\text{cm} \div 5$$

$$= 5\text{cm}$$

12) Students are marching in a parade. There are 11 students in a row. What is the rule, which gives the number of students, given the number of rows

Sol. Let the number of rows be 'n'.

Since there are 11 students in a row and number of rows are n.

∴ Rule is given as,

Number of students in the parade = $11n$

13) List any three symmetrical objects from your home or school.

Sol. Three symmetrical objects are:

- (i) An electric tube-light
- (ii) A water glass
- (iii) A fan

14) Write the expression for “5 times y from which 3 is subtracted”?

Sol. Given that 3 is subtracted from 5 times y

5 times y is ‘ $5y$ ’

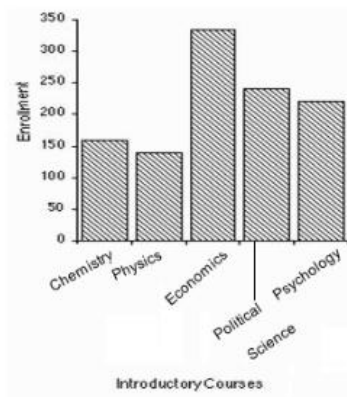
Since 3 is subtracted from $5y$, we get the following expression

$$(5y - 3)$$

SECTION

15) From the following graph, find

- (a) Which course has the most students enrolled in it?
- (b) Order the courses by enrollment from lowest to highest.
- (c) The enrollment in Economics is approximately how many times bigger than the enrollment in Chemistry??



Sol. (a) Introductory Economics has the most students enrolled.

- (b) From lowest to highest: Physics, Chemistry, Psychology, Political Science, Economics.
- (c) From ratio of the number of students enrolled in Economics to the number enrolled in Chemistry we can state that enrollment in Economics is 2 times larger than in Chemistry

16) If the marks of Rohit, Ajay and Vipul are in ratio of 4 : 5 : 6. If Ajay got 75 marks then find the marks of Rohit and Vipul.

Sol. Let the marks of Rohit, Ajay and Vipul be $4x$, $5x$ and $6x$ respectively.

Given that Ajay's marks = 75

$$\Rightarrow 5x = 75$$

$$x = \frac{75}{5} = 15 \text{ marks}$$

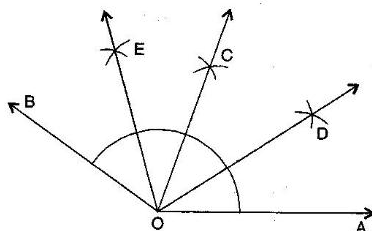
Marks of Rohit = $4x = 4 \times 15 = 60$ marks

Marks of Vipul = $6x = 6 \times 15 = 90$ marks

17) Draw an angle of measure 153° and divide it into four equal parts.

Sol. Steps of construction:

- (a) Draw a ray \overrightarrow{OA} .
- (b) At O, with the help of a protractor, construct $\angle AOB = 153^\circ$
- (c) Draw \overline{OC} as the bisector of $\angle AOB$.
- (d) Again, draw \overline{OD} as bisector of $\angle AOC$.
- (e) Again, draw \overline{OE} as bisector of $\angle BOC$.
- (f) Thus, \overline{OC} , \overline{OD} and \overline{OE} divide $\angle AOB$ in four equal parts.



18) Simplify (A) $4\frac{2}{3} + \frac{1}{3} - 4\frac{1}{3}$
(B) $8\frac{1}{4} - 2\frac{5}{6}$

Sol. We have,

$$\begin{aligned} \text{(A)} \quad & 4\frac{2}{3} + \frac{1}{3} - 4\frac{1}{3} \\ &= \frac{4 \times 3 + 2}{3} + \frac{1}{3} - \frac{4 \times 3 + 1}{3} \\ &= \frac{14}{3} + \frac{1}{3} - \frac{13}{3} \\ &= \frac{15}{3} - \frac{13}{3} \\ &= \frac{15-13}{3} \\ &= \frac{2}{3} \end{aligned}$$

$$\begin{aligned} \text{(B)} \quad & 8\frac{1}{4} - 2\frac{5}{6} \\ &= \frac{8 \times 4 + 1}{4} - \frac{2 \times 6 + 5}{6} \\ &= \frac{33}{4} - \frac{17}{6} \\ &= \frac{33 \times 3}{4 \times 3} - \frac{17 \times 2}{6 \times 2} \\ &= \frac{99}{12} - \frac{34}{12} \\ &= \frac{99-34}{12} \\ &= \frac{65}{12} = 5\frac{5}{12} \end{aligned}$$

19) Find the cost of fencing a square park of side 460m at the rate of Rs. 25 per meter.

Sol. We have,

$$\text{Side of square} = 460 \text{ m}$$

$$\therefore \text{Perimeter} = 4 \times \text{side}$$

$$\begin{aligned}\text{Perimeter} &= (4 \times 460)\text{m} \\ &= 1840\text{m}\end{aligned}$$

⇒ Cost of one meter fencing = Rs 25

$$\begin{aligned}\therefore \text{Total cost of fencing} &= \text{Rs } (1840 \times 25) \\ &= \text{Rs } 46000\end{aligned}$$

20) The weight of 45 folding chairs is 18 kg. How many chairs can be loaded on a truck having a capacity of carrying 4000 kg load?

Sol. The number of chairs in 18kg weight = 45

$$\therefore \text{the number of chairs in 1 kg weight} = \frac{45}{18}$$

$$\text{Hence, the number of chairs in 4000 kg weight} = \frac{45}{18} \times 4000 = 10000$$

Thus, 10000 chairs can be loaded on a truck having capacity of carrying 4000 kg load

21) Express the following in the language of ratios:

- (a) The length of rectangle is doubled of its breadth.
- (b) For preparing tea, 3 cups of water required 1 cup of milk
- (c) in a school, the work load of teaching four classes has been assigned to six teachers.

Sol. (a) Length and the breadth of the rectangle are in ratio 2 : 1

(b) in tea, we have,

Amount of water = 3 cups

Amount of milk = 1 cup

∴ Ratio of water to milk is 3 : 1

(c) we have,

Number of classes = 4

Number of teachers = 6

∴ Ratio of the number of classes to the number of teachers is 4 : 6

22) Draw a line segment of length 4.5 cm using ruler and compass?

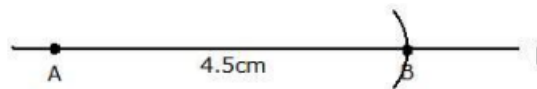
Sol. Steps of construction:

(1) Draw a line l. Mark a point A on a line l.

(2) Place the compasses pointer on the 0 mark of the ruler. Open it to place the pencil point up to the 4.5 cm mark.

(3) Taking caution that the opening of the compasses has not changed, place the pointer on A and swing an arc to cut l at B.

(4) \overline{AB} is a line segment of required length



SECTION

23) Ben is x years old. His father's age is 3 more than 9 times his age. The sum of their ages is 73 years. Find Ben's father's age?

Sol. Given that Ben is x years old

9 times Ben's age = $9x$ years

Given that Ben's father's age is 3 more than $9x$

Hence Ben's father's age = $9x + 3$

Sum of Ben and his father's age 73 years

$$\therefore x + (9x + 3) = 73$$

$$10x = 73 - 3$$

$$x = \frac{70}{10} = 7$$

$$\text{Ben's father's age } 9x + 3 = 9(7) + 3 = 63 + 3 = 66$$

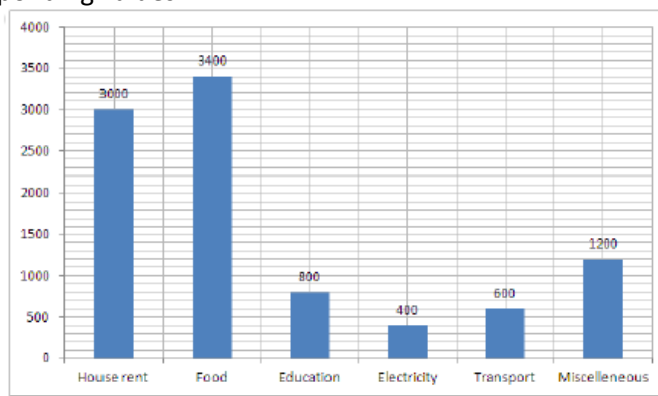
Hence Ben's father's age 7 years

24) Following table shows the monthly expenditure of Imran's family on various items? Draw a bar graph

| Items | Expenditure(Rs) |
|---------------|-----------------|
| House rent | 3000 |
| Food | 3400 |
| Education | 800 |
| Electricity | 400 |
| Transport | 600 |
| Miscellaneous | 1200 |

Sol. To represent this data in the form of a bar diagram, here are the steps.

- Draw two perpendicular lines, one vertical and one horizontal.
- Along the horizontal line mark the 'items' and along the vertical line mark the corresponding expenditure.
- Take bars of same width keeping uniform gap between them.
- Choose suitable scale along the vertical line. Let 1 unit length = Rs 500 and then mark the corresponding values.



- 25) A rectangular box has height h cm. Its length is 5 times the height and breadth is 10 cm less than the length. Express the length and the breadth of the box in terms of the height?

Sol: Given the height of the rectangular box be h

Given length = 5 times height = $5h$

Breadth = length - 10 cm = $5h - 10$

Hence, length = $5h$ and breadth = $5h - 10$

- 26) Elena and Claudia go for jogging every morning. Elena goes around a square field of 200m. Claudia goes around a rectangular field of length 300m and breadth 110m. If they both takes 3 rounds, who covers the greater distance and much more?

Sol. Clearly, the distance each girl covers in one round is the same as the perimeter of the field

\therefore Distance covered by Elena in one round = Perimeter of square field

$$= 4 \times \text{side}$$

$$= 4 \times 200\text{m} = 800 \text{ m}$$

Distance covered by Elena in 3 rounds = $3 \times 800\text{m} = 2400\text{m}$

Distance covered by Claudia in one round = Perimeter of rectangular field

$$= 2 (\text{length} + \text{breadth})$$

$$= 2 (300 + 110)\text{m}$$

$$= 2 \times 410\text{m} = 820\text{m}$$

Distance covered by Claudia in 3 rounds = $3 \times 820\text{m} = 2460\text{m}$

Hence, Claudia covers more distance

Excess distance covered by Claudia = $(2460 - 2400)\text{m} = 60\text{m}$