

EXERCISE

2

Percentages

1. If A got 40% marks more than B in the exam, by what percentage is B's marks less than that of A?

- (a) 28.56% (b) 9.09%
(c) 7.14% (d) 40%

Answer: a)

Let the marks of B be 100 and so the marks obtained by A = 140

Now, we need to compare B with A.

$$= \frac{100 - 140}{140} \times 100 = \frac{-40}{140} \times 100 = -28.56\%$$

2. By what percentage is 60% of 1750 more than 45% of the same number?

- (a) 15% (b) 25%
(c) 33.33% (d) none of these

Answer: c)

As the base value is the same for both, we need not find the actual values.

Required answer: $\frac{60 - 45}{45} \times 100 = \frac{100}{3} = 33.33\%$

3. If 20% of A is equal to 50% of B, then B is how much percentage less than A?

- (a) 40% (b) 50%
(c) 60% (d) 66.66%

Answer: c)

Given that

$$\frac{A}{5} = \frac{B}{2} \Rightarrow A = 2.5B$$

$$\frac{B - A}{A} \times 100 = \frac{B - 2.5B}{2.5B} \times 100 = -60\%$$

4. If 30% of C is same as 45% of D, then which of the following is true?

- (a) C = 2D (b) C = 1.5D
(c) D = 2C (d) D = 1.5C

Answer: b)

Given that

$$30\% \text{ of } C = 45\% \text{ of } D$$

$$\text{Therefore, } 2C = 3D \text{ or } C = 1.5D$$

5. A daily wage earner gets Rs. 200 for every day that he works. Overtime per day is paid at 40% above half the normal daily wage. If the man worked overtime for 10 days in the month of May, what is his earning from working overtime in May?

- (a) 400 (b) 1400
(c) 1000 (d) 2400

Answer: b)

Overtime rate is 40% above half the daily wage rate, that is, 40% above Rs. 100, that is, Rs. 140.

As he worked overtime for 10 days, his earning due to working overtime during the period = Rs. 140 × 10 = Rs. 1400

6. A man's monthly income first gets increased by 15% in the month of May followed by a 20% increase in the month of June. What is the overall percentage increase in the man's salary?

- (a) 35% (b) 38%
(c) 40% (d) None of these

Answer: b)

$$\text{The required value is } 20 + 15 + \frac{300}{100} = 38\%$$

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7. If the length of a rectangle increases by 20% while the breadth decreases by 20%, what is the percentage change in the area of the rectangle?

- (a) No change (b) 4% decrease
(c) 4% increase (d) Cannot be determined

Answer: b)

$$\text{The required value is } -20 + 20 - \frac{400}{100} = -4\%$$

8. The side of a cube increases by 10%. What is the percentage change in the volume of the cube?

- (a) 30% increase (b) 33.1% increase
(c) 21% increase (d) None of these

Answer: b)

Volume of a cube = Side \times Side \times Side

$$= 10 + 10 + \frac{100}{100} = 21\% \text{ increase}$$

Further,

$$= 21 + 10 + \frac{21 \times 10}{100} = 31 + 2.1 = 33.1\% \text{ increase}$$

9. If the price of sugar increases by 20%, by what percentage should the consumption be reduced so that overall expenditure is same as earlier?

- (a) 16.66% (b) 25%
(c) 20% (d) None of these

Answer: a)

For constant expenditure, price and quantity are inversely proportional. 20 can be written as 1/5.

	Initial	Final
Price	5	6
Consumption	6	5

$$\text{Required value} = \frac{5-6}{6} \times 100 = -16.66\%$$

10. In an exam, a candidate got 35% marks and failed by 12 marks. If he had got 48% marks instead, he would have got 14 marks more than the passing marks. Find the passing marks.

- (a) 96 (b) 200
(c) 82 (d) None of these

Answer: c)

The difference between the two scores is equal to 13% of the maximum marks and the difference in scores is 26. In the first case the candidate would have failed by 12 marks while in the second case the candidate would have passed by 14 marks.

So, 13% of the maximum marks is 26%. Maximum marks will be 200. Now 48% of the maximum marks will be 96 and his person has got 14 marks more than the passing marks. Therefore, passing marks will be $96 - 14 = 82$.



Notes
