

Comparing Quantities — Percentage, Profit, Loss and Interest

Mathematics · Class 8 · Topic-wise Practice Worksheet

TIME 45 minutes	QUESTIONS 18	TOTAL MARKS 24	MAX. SCORE ___ / 24
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Name: _____ Class/Sec: _____ Date: _____

INSTRUCTIONS

- There are **18 questions** in this worksheet. All questions are compulsory.
- Each question has four options (A), (B), (C) and (D). Exactly **one** option is correct.
- Questions 1–15 carry **1 mark** each. Questions 16–18 (Achievers Section) carry **3 marks** each.
- There is no negative marking. Use of a calculator is **not** allowed.
- Rough work may be done on the blank space at the side of each page.

Section A — Mathematical Reasoning

Q1–Q8 · 1 mark each

- 25% of 480 is _____.
 (A) 96 (B) 110
 (C) 120 (D) 125
- Two numbers are in the ratio 3 : 5. If the first number is 12, the second number is _____.
 (A) 15 (B) 18
 (C) 20 (D) 25
- An article bought for ₹250 is sold for ₹300. The profit per cent is _____.
 (A) 20% (B) $16\frac{2}{3}\%$
 (C) 25% (D) 50%
- A discount of 20% is given on an article marked at ₹1500. Its selling price is _____.
 (A) ₹1480 (B) ₹1250
 (C) ₹1300 (D) ₹1200
- The simple interest on ₹5000 at 8% per annum for 2 years is _____.
 (A) ₹800 (B) ₹640
 (C) ₹400 (D) ₹1000
- If the selling price of an article is less than its cost price, the seller makes a _____.
 (A) Profit (B) Loss
 (C) Discount (D) Neither profit nor loss
- When a quantity increases from 40 to 50, the percentage increase is _____.
 (A) 10% (B) 20%
 (C) 80% (D) 25%

8. The compound interest on ₹10000 at 10% per annum for 2 years, compounded annually, is _____.

(A) ₹2100

(B) ₹2000

(C) ₹2200

(D) ₹1000

Section B — Everyday Mathematics and Reasoning

Q9–Q15 · 1 mark each

9. The pie chart shows how a family spends its monthly income of ₹36,000. How much is spent on **food**?

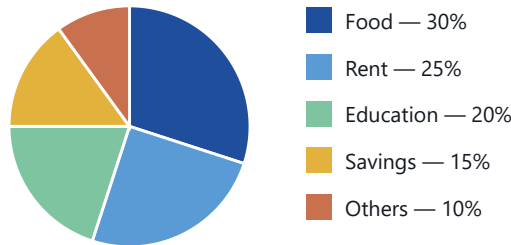


Fig. 9.1 — Monthly family budget

(A) ₹9,000

(B) ₹10,800

(C) ₹12,000

(D) ₹7,200

10. A shirt is marked at ₹1200 and sold at a discount of 15%. Its selling price is _____.

(A) ₹1140

(B) ₹1080

(C) ₹1020

(D) ₹180

11. A bill for goods worth ₹2000 attracts GST at 18%. What is the total amount payable?

(A) ₹2180

(B) ₹1640

(C) ₹2018

(D) ₹2360

12. The population of a town is 20,000 and it increases by 10% every year. What will it be after 2 years?

(A) 24,200

(B) 24,000

(C) 22,000

(D) 22,200

13. A man buys a cycle for ₹400 and sells it for ₹360. His loss per cent is _____.

(A) $11\frac{1}{9}\%$

(B) 10%

(C) 40%

(D) 4%

14. ₹3600 is divided among three friends in the ratio 2 : 3 : 4. The largest share is _____.

(A) ₹800

(B) ₹1200

(C) ₹1600

(D) ₹1800

15. In what time will ₹8000 amount to ₹9440 at 9% per annum simple interest?

(A) 1 year

(B) 3 years

(C) $2\frac{1}{2}$ years

(D) 2 years

16. Consider the following statements.

- (i) Profit per cent is always calculated on the selling price.
- (ii) For the same principal, rate and time of 1 year, simple interest and compound interest (compounded annually) are equal.
- (iii) A discount is always calculated on the marked price.

Which of the statements is/are correct?

- | | |
|------------------------|-------------------------|
| (A) (i) and (ii) only | (B) (ii) and (iii) only |
| (C) (i) and (iii) only | (D) All three |

17. The price of an article is first increased by 20% and then the new price is decreased by 20%. The net change in the price is _____.

- | | |
|-------------------|--------------------|
| (A) A 4% decrease | (B) A 4% increase |
| (C) No change | (D) A 20% decrease |

18. Find the compound interest on ₹12,500 at 8% per annum for 2 years, compounded annually.

- | | |
|-----------|-----------|
| (A) ₹2000 | (B) ₹2080 |
| (C) ₹2160 | (D) ₹2400 |

Answer Key

1	C	2	C	3	A	4	D	5	A
6	B	7	D	8	A	9	B	10	C
11	D	12	A	13	B	14	C	15	D
16	B	17	A	18	B				

Solutions

1. Answer: (C) 120

25% means one quarter, so 25% of 480 = $480 \div 4 = 120$.

2. Answer: (C) 20

3 parts correspond to 12, so 1 part = $12 \div 3 = 4$.

The second number is 5 parts = $5 \times 4 = 20$.

3. Answer: (A) 20%

Profit = $300 - 250 = ₹50$.

Profit% = $(\text{Profit} \div \text{CP}) \times 100 = (50 \div 250) \times 100 = 20\%$. Remember that profit per cent is always worked out on the *cost price*.

4. Answer: (D) ₹1200

Discount = 20% of 1500 = ₹300.

Selling price = $1500 - 300 = ₹1200$.

5. Answer: (A) ₹800

SI = $(P \times R \times T) \div 100 = (5000 \times 8 \times 2) \div 100 = 80000 \div 100 = ₹800$.

6. Answer: (B) Loss

When $SP < CP$ the seller gets back less than what was spent, so there is a **loss**, and $\text{Loss} = CP - SP$.

7. Answer: (D) 25%

Increase = $50 - 40 = 10$.

Percentage increase = $(10 \div 40) \times 100 = 25\%$. The increase is always compared with the *original* value.

8. Answer: (A) ₹2100

Interest for year 1 = 10% of 10000 = ₹1000, so the amount becomes ₹11000.

Interest for year 2 = 10% of 11000 = ₹1100.

Total CI = $1000 + 1100 = ₹2100$. This is ₹100 more than the simple interest, because the first year's interest itself earns interest.

9. Answer: (B) ₹10,800

Food takes 30% of the income.

30% of 36,000 = $(30 \div 100) \times 36,000 = ₹10,800$.

10. Answer: (C) ₹1020

Discount = 15% of 1200 = $(15 \div 100) \times 1200 = ₹180$.

Selling price = $1200 - 180 = ₹1020$.

11. Answer: (D) ₹2360

GST = 18% of 2000 = $(18 \div 100) \times 2000 = ₹360$.

Total payable = $2000 + 360 = ₹2360$. GST is always added on top of the listed price.

12. Answer: (A) 24,200

This is compound growth.

After 1 year: $20,000 + 10\% \text{ of } 20,000 = 22,000$.

After 2 years: $22,000 + 10\% \text{ of } 22,000 = 22,000 + 2,200 = 24,200$.

(The answer is not 24,000, because the second year's increase is calculated on the larger figure.)

13. Answer: (B) 10%

Loss = $400 - 360 = ₹40$.

Loss% = $(40 \div 400) \times 100 = 10\%$.

14. Answer: (C) ₹1600

Total parts = $2 + 3 + 4 = 9$, so 1 part = $3600 \div 9 = ₹400$.

The largest share is 4 parts = $4 \times 400 = \text{₹1600}$. (The three shares are ₹800, ₹1200 and ₹1600, which add up to ₹3600. ✓)

15. Answer: (D) 2 years

SI = $9440 - 8000 = ₹1440$.

$T = (SI \times 100) \div (P \times R) = (1440 \times 100) \div (8000 \times 9) = 144000 \div 72000 = \text{2 years}$.

16. Answer: (B) (ii) and (iii) only

Statement (i) is false — profit and loss per cent are calculated on the **cost price**. Statement (ii) is true; over a single year there is no chance for interest to earn interest, so both come to the same amount. Statement (iii) is true; a discount is a reduction on the marked (listed) price. Hence **(ii) and (iii)**.

17. Answer: (A) A 4% decrease

Take the original price as ₹100 (any convenient value works).

After a 20% increase: $100 + 20 = ₹120$.

After a 20% decrease on ₹120: $120 - 24 = ₹96$.

Net change = $96 - 100 = -4$, that is a **4% decrease**.

The two changes do not cancel out, because the 20% rise is worked out on ₹100 while the 20% fall is worked out on the larger figure of ₹120.

18. Answer: (B) ₹2080

Year 1: Interest = $8\% \text{ of } 12,500 = (8 \div 100) \times 12,500 = ₹1000$. Amount = ₹13,500.

Year 2: Interest = $8\% \text{ of } 13,500 = (8 \div 100) \times 13,500 = ₹1080$. Amount = ₹14,580.

CI = $14,580 - 12,500 = \text{₹2080}$.

(The simple interest would have been only ₹2000, so compounding adds ₹80.)