Unit 5 · Fraction and Decimal

HARDER PRACTICE QUESTIONS · ANSWER KEY

Full marks 33

Give the marks for the points in the marking scheme; an answer in other words that says the same is right.

1 Spot the errors

ANSWER U · 4

i. $\frac{3}{4}$. Multiply first: $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$, then $\frac{1}{2} + \frac{1}{4} = \frac{3}{4}$. He added first.

ii. **0.06.** $3 \times 2 = 6$, and the two numbers have $1 + 1 = 2$ decimal places between them.

iii. **6.** $3 \div 0.5 = 30 \div 5 = 6$: there are six halves in 3. He multiplied by 0.5.

iv. $\frac{3}{4}$. The rest is $\frac{3}{4}$, and $\frac{2}{3}$ of it is $\frac{2}{3} \times \frac{3}{4} = \frac{1}{2}$ of the whole. Spent: $\frac{1}{4} + \frac{1}{2} = \frac{3}{4}$. He took $\frac{2}{3}$ of the whole, not of the rest.

MARKING SCHEME

- ✓ i. 3/4: × before +.
- ✓ ii. 0.06: two decimal places.
- ✓ iii. 6: six halves in 3.
- ✓ iv. 3/4: 2/3 is of the rest.

2 Estimate, then choose

ANSWER U · 3

a. About $20 \times 0.5 = 10$: **9.702**.

b. About $4 \div 0.2 = 20$: **20**.

c. About $0.5 \times 0.5 = 0.25$: **0.2499**.

MARKING SCHEME

- ✓ a. Estimate 10: 9.702.
- ✓ b. Estimate 20: 20.
- ✓ c. Estimate 0.25: 0.2499.

3 A tank on the roof

ANSWER HA · 4

i. After the morning $\frac{3}{5}$ is left. Noon uses $\frac{1}{3} \times \frac{3}{5} = \frac{1}{5}$, so $\frac{2}{5}$ is left.

ii. From $\frac{2}{5}$ down to $\frac{1}{5}$: 120 liters is $\frac{1}{5}$ of the tank.

iii. $5 \times 120 =$ **600 liters**.

iv. Noon used $\frac{1}{5}$ of 600: **120 liters**. Check: $240 + 120 + 120 = 480$ used, and $600 - 480 = 120 = \frac{1}{5}$ of 600 ✓.

MARKING SCHEME

- ✓ i. 2/5 left after noon.
- ✓ ii. 120 liters is 1/5.
- ✓ iii. 600 liters.
- ✓ iv. 120 liters at noon.

4 Passing the test

ANSWER

i. **2 parts** of the girls' bar and **3 parts** of the boys' bar.

ii. 2 girls' parts = 3 boys' parts. So if a girls' part is **3 small units**, a boys' part is **2**: both make 6.

iii. Girls: 3 parts × 3 = 9 units; boys: 4 parts × 2 = 8 units. 17 units = 34 students, so 1 unit = 2. **18 girls** and **16 boys**.

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iv. $\frac{2}{3} \times 18 = 12$ girls and $\frac{3}{4} \times 16 = 12$ boys: 24 of 34, $\mathbf{\frac{12}{17}}$. HA · 4

MARKING SCHEME

- ✓ i. 2 girls' parts and 3 boys' parts.
- ✓ ii. A girls' part is 3 units, a boys' part 2.
- ✓ iii. 18 girls and 16 boys.
- ✓ iv. 24 passed: 12/17.

5 At the tailor's

ANSWER A · 4

i. $12.6 \times 345.50 =$ **Rs 4,353.30**.

ii. $12.6 \div 2.25 = 1260 \div 225 = 5.6$: **5 kurtas**. They use $5 \times 2.25 = 11.25$ m, leaving $12.6 - 11.25 =$ **1.35 m**.

iii. **Yes**, one: $1.35 - 0.85 =$ **0.5 m** is left, not enough for a second.

MARKING SCHEME

- ✓ Rs 4,353.30.
- ✓ 5 kurtas.
- ✓ 1.35 m left.
- ✓ One shawl, 0.5 m left.

6 Fractions and decimals together

ANSWER A · 4

The small bracket first: $1\frac{1}{5} = 1.2$, so $2.4 - 1.2 = 1.2$.

"Of": $\frac{1}{2} \times 1.2 = 0.6$.

Divide: $0.6 \div 0.3 = 6 \div 3 = 2$.

Add: $0.75 + 2 = \mathbf{2.75 = 2\frac{3}{4} = \frac{11}{4}}$.

MARKING SCHEME

- ✓ $2.4 - 1.2 = 1.2$.
- ✓ Half of it, 0.6.
- ✓ $0.6 \div 0.3 = 2$.
- ✓ $2.75 = 2\frac{3}{4}$.

7 The missing number

ANSWER A · 3

a. $2.5 \times \square = 3.25 + 1.75 = 5$, so $\square = 5 \div 2.5 =$ **2**.

b. $\square = 0.6 \div \frac{3}{4} = 0.6 \times \frac{4}{3} =$ **0.8**.

c. $\square = 125 \times 0.04 =$ **5**.

MARKING SCHEME

- ✓ a. 2.
- ✓ b. 0.8.
- ✓ c. 5.

8 Make your own

ANSWER

For example:

i. $\frac{1}{2} \div \frac{1}{3} + \frac{1}{4} = \frac{3}{2} + \frac{1}{4} = \frac{7}{4}$

ii. $\frac{1}{2} \times \frac{1}{3} \times \frac{1}{4} = \frac{1}{24}$

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iii. $\frac{1}{2} + \frac{1}{3} \times \frac{1}{4} = \frac{1}{2} + \frac{1}{12} = \frac{7}{12}$ **A · 3**

Any sum that is worked out in the right order and fits is right.

MARKING SCHEME

- ✓ i. A sum greater than 1.
- ✓ ii. A sum less than 1/10.
- ✓ iii. A sum between 1/2 and 1.

9 Think: the wrong button

ANSWER **HA · 4**

i. $1 \div 0.4 = 2.5$: dividing by 0.4 is multiplying by **2.5**.

ii. $2.5 - 0.4 =$ **2.1** times the number.

iii. $8.4 \div 2.1 =$ **4**. Check: $4 \div 0.4 = 10$, $4 \times 0.4 = 1.6$, and $10 - 1.6 = 8.4$ ✓.

iv. **Negative numbers.** For -4: $-4 \times 0.4 = -1.6$, but $-4 \div 0.4 = -10$, and -1.6 is greater than -10. (For 0 both give 0.)

MARKING SCHEME

- ✓ i. 2.5.
- ✓ ii. 2.1 times the number.
- ✓ iii. 4, checked.
- ✓ iv. Negative numbers, with an example.

See it at Science Playground

Exhibits and plants at the center, Bhaktapur, that go with this unit. Book a class visit at science-playground.com/booking.

- **Tangram Puzzle** (exhibit): Add the seven pieces as parts of the whole square: 1/4 + 1/4 + 1/8 + 1/8 + 1/8 + 1/16 + 1/16. Simplify: the sum must be 1.

Marks by level	Knowledge	Understanding	Application	Higher ability	Total
Marks	0	7	14	12	**33**

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