Fractions and decimals topic test

15 questions | 37 marks | 45 minutes

A progressive by-hand paper on fraction forms, calculations, decimal methods and practical reasoning.

Equivalent correct methods earn the corresponding marks.

1. Simplify $\frac{20}{28}$. [1 mark]

Divide numerator and denominator by 4.

Answer: $\frac{5}{7}$

2. Write $\frac{19}{4}$ as a mixed number. [1 mark]

$19 \div 4$ is 4 remainder 3.

Answer: $4\frac{3}{4}$

3. Order 0.45, $\frac{7}{16}$ and 0.48 from smallest to largest. [2 marks]

$\frac{7}{16} = 0.4375$; compare 0.4375, 0.4500 and 0.4800.

Answer: $\frac{7}{16}, 0.45, 0.48$

4. Calculate $\frac{5}{12} + \frac{1}{3}$. [2 marks]

$\frac{5}{12} + \frac{4}{12} = \frac{9}{12} = \frac{3}{4}$.

Answer: $\frac{3}{4}$

5. Calculate $\frac{7}{9} - \frac{2}{3}$. [2 marks]

$\frac{7}{9} - \frac{6}{9} = \frac{1}{9}$.

Answer: $\frac{1}{9}$

6. Calculate $\frac{2}{5} \times \frac{15}{8}$. [2 marks]

$\frac{30}{40} = \frac{3}{4}$.

Answer: $\frac{3}{4}$

7. Calculate $\frac{7}{8} \div \frac{1}{4}$. [2 marks]

$\frac{7}{8} \times 4 = \frac{7}{2} = 3\frac{1}{2}$.

Answer: $3\frac{1}{2}$

8. Calculate $6.4 - 2.85$. [2 marks]

Write $6.40 - 2.85 = 3.55$.

Answer: 3.55

9. Calculate 0.24×1.5. [2 marks]

$24 \times 15 = 360$; account for three decimal places to obtain 0.360.

Answer: 0.36

10. Calculate $5.4 \div 0.6$. [2 marks]

Scale both numbers by 10: $54 \div 6 = 9$.

Answer: 9

11. Ana writes $\frac{1}{2} + \frac{1}{3} = \frac{2}{5}$. Explain the error and give the correct answer. [3 marks]

$\frac{1}{2} = \frac{3}{6}$ and $\frac{1}{3} = \frac{2}{6}$.

Add the numerators after renaming; do not add the denominators.

Answer: $\frac{5}{6}$; equal-sized parts must be used.

12. A rope is $3\frac{1}{2}$ m long. A piece of $1\frac{3}{4}$ m is removed. Find the length left. [3 marks]

$\frac{7}{2} - \frac{7}{4} = \frac{7}{4}$ m.

Answer: $1\frac{3}{4}$ m

13. A cafe has 20 dollars for supplies. Four packets cost 2.65 dollars each. [4 marks]

(a) Find the cost of the four packets. [2 marks]

$4 \times 2.65 = 10.60$.

Answer: 10.60 dollars

(b) Find the money left. [2 marks]

$20.00 - 10.60 = 9.40$.

Answer: 9.40 dollars

14. A container holds $2\frac{1}{4}$ L. Each bottle holds $\frac{2}{5}$ L. [5 marks]

(a) How many complete bottles can be filled? [3 marks]

$\frac{9}{4} \div \frac{2}{5} = \frac{45}{8} = 5\frac{5}{8}$; only five bottles are complete.

Answer: 5

(b) How much remains in the container? [2 marks]

$\frac{9}{4} - 5 \times \frac{2}{5} = \frac{1}{4}$ L.

Answer: $\frac{1}{4}$ L

15. A rectangular garden is $2\frac{1}{2}$ m long and $1\frac{4}{5}$ m wide. A student says its area is 45 square metres. Estimate first, then calculate the correct area and explain whether 45 is sensible. [4 marks]

An estimate is $2.5 \times 2 = 5$ square metres.

The exact area is $\frac{5}{2} \times \frac{9}{5} = \frac{9}{2} = 4\frac{1}{2}$ square metres.

Answer: $4\frac{1}{2}$ square metres; 45 is not sensible.