

1.2 Fractions, decimals and percentages

Name: _____ Class: _____ Date: _____

Total: 15 marks**KEY WORDS** multiplier • recurring decimal

Objective

Convert between fractions, decimals and percentages; use multipliers and reverse percentages. Original questions for rules N10–N13.

1 Key knowledge and worked examples

- **FDP conversions:** $\frac{3}{5} = 0.6 = 60\%$; $0.375 = \frac{3}{8}$; divide the numerator by the denominator for the decimal.
- **(H) Recurring decimals:** $x = 0.6$ recurring $\rightarrow 10x = 6.6$ recurring $\rightarrow 9x = 6 \rightarrow x = \frac{2}{3}$. Two digits recurring $\rightarrow \times 100$, divide by 99.
- **Multipliers:** $+15\% \rightarrow \times 1.15$; $-20\% \rightarrow \times 0.8$; **reverse** percentage: original = new $\div$ multiplier.
- **Units:** 1 km = 1000 m, 1 m = 100 cm; 1 kg = 1000 g; 0.5 h = 30 min (not 50 min).

Worked example (3 marks). A jumper costs £33 after a 15 % reduction. Find the original price.

The £33 is 85 % of the original; original = $33 \div 0.85$; = £38.82 (to the nearest penny).

2 Practice

2.1 Write 0.35 as a fraction in its simplest form. [2]

2.2 Increase 240 by 7.5 %. [2]

2.3 (*H*) Write 0.777 recurring as a fraction. [2]

3 Exam-style questions

3.1 Write these in order of size: $\frac{3}{8}$, 0.37, 38 %, 0.4. [3]

3.2 A car's price rises from £8500 to £9690. Work out the percentage increase. [3]

3.3 (*H*) Convert 0.4545 recurring (45 repeating) to a fraction in its simplest form. [3]

Solutions

2.1 $35/100; = 7/20.$

2.2 $240 \times 1.075; = 258.$

2.3 $x = 0.777\dots, 10x = 7.777\dots, 9x = 7; x = 7/9.$

3.1 As decimals: 0.375, 0.37, 0.38, 0.4; order: 0.37, $3/8$, 38 %, 0.4; consistent smallest-to-largest presentation.

3.2 Increase = $9690 - 8500 = 1190$; $1190/8500; \times 100 = 14 \%$.

3.3 $x = 0.4545\dots, 100x = 45.4545\dots, 99x = 45; x = 45/99; = 5/11.$