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**: $3/5 = 0.6 = 60\%$; $0.375 = 3/8$; divide the numerator by the denominator for the decimal.
- **(H) Recurring decimals**: x = 0.6 recurring → 10x = 6.6 recurring → 9x = 6 → x = 2/3. Two digits recurring → ×100, divide by 99.
- **Multipliers**: +15 % → × 1.15; −20 % → × 0.8; **reverse** percentage: original = new ÷ 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 ÷ 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: 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 × 1.075; = 258.

2.3 x = 0.777…, 10x = 7.777…, 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; × 100 = 14 %.

3.3 x = 0.4545…, 100x = 45.4545…, 99x = 45; x = 45/99; = 5/11.