

Equivalence

a) Make the fractions equivalent:

$$\frac{3}{4} = \frac{9}{12} = \frac{12}{16} = \frac{54}{72}$$

b) Write in its simplest terms:

$$\frac{312}{858} = \frac{4}{11}$$

c) Write as a mixed number:

$$\frac{94}{7} = 13\frac{3}{7}$$

d) Write as an improper fraction:

$$5\frac{4}{9} = \frac{49}{9}$$

Fraction arithmetic

Evaluate:

$$\text{a) } \frac{1}{2} + \frac{1}{3} + \frac{1}{8} = \frac{23}{24}$$

$$\text{b) } 2\frac{1}{4} - \frac{5}{6} = 1\frac{5}{12}$$

$$\text{c) } \frac{4}{5} \times 1\frac{1}{3} = 1\frac{1}{15}$$

$$\text{d) } 1\frac{2}{3} \div \frac{2}{9} = 7\frac{1}{2}$$

$$\text{e) } \frac{7}{8} \div \frac{2}{3} \times \frac{2}{5} = \frac{21}{40}$$

Decimal arithmetic

Use a handwritten method to calculate:

$$\text{a) } 5.19 - 3.4 + 2.078 = 3.868$$

$$\text{b) } 0.15 \times 6.3 = 0.945$$

$$\text{c) } 2.64 \div 3.2 = 0.825$$

$$\text{d) } (0.3)^3 = 0.027$$

Percentage change

Find the percentage change in price when a guitar is reduced from £320 to £280.

= 12.5% decrease

Compound interest

£3200 is invested in an account that receives 2.5% compound interest per annum. What is the total value of the investment after 4 years?

= £3532.20

The value of a car decreases by 10% each year. If it was bought for £8000, how much is it worth five years later?

= £4723.92

Comparing fractions and decimals

Use =, <, or >:

$$\text{a) } \frac{3}{5} > \frac{6}{11}$$

$$\text{b) } \frac{5}{8} = 0.625$$

$$\text{c) } 1\frac{5}{6} = \frac{44}{24}$$

$$\text{d) } \frac{13}{8} < 1.63$$

$$\text{e) } \frac{3}{7} > 0.42$$

Fractions as operators

Find:

$$\text{a) } \frac{2}{3} \text{ of } 186 = 124$$

$$\text{b) } \frac{5}{6} \text{ of } 3\frac{1}{2} = 2\frac{11}{12}$$

$$\text{c) } \frac{13}{20} \text{ of } 72 \text{ Kg} = 46.8 \text{ Kg}$$

$$\text{d) } \frac{3}{8} \text{ of } £10.96 = £4.11$$

Recurring decimals and fractions

Write as a recurring decimal:

$$\text{a) } \frac{1}{6} = 0.1\dot{6}$$

$$\text{b) } \frac{7}{99} = 0.\dot{0}\dot{7}$$

$$\text{c) } \frac{2}{7} = 0.\dot{2}8571\dot{4}$$

Write as a fraction in its simplest terms:

$$\text{e) } 0.\dot{8} = \frac{8}{9}$$

$$\text{f) } 0.2\dot{7} = \frac{5}{18}$$

$$\text{g) } 0.\dot{0}\dot{6}\dot{6} = \frac{22}{333}$$

Reverse percentages

The price of a computer including 20% VAT is £570. What was the price of the computer excluding VAT?

= £475

The population of an island is 15% lower than it was ten years ago. If the population is now 13600, what was the population ten years ago?

= 16000