



ACHIEVE ACADEMY

GCSE Maths — Higher Tier

Fractions, Decimals & Percentages · Practice Booklet

NAME: _____

CLASS: _____

DATE: _____

☐ Developing

☒ Secure

☐ Greater Depth

Answer every question in the working space provided. Method marks are available for correct working even if the final answer is wrong. Check the time allowed with your tutor before you start.

Fractions, Decimals & Percentages

Total marks available: 117

● Fractions, Decimals & Percentages

✓ £162

Q1 · ● Developing · 3 marks

METHOD

$$\text{Multiplier} = 1 + 8/100 = 1.08$$

$$\text{Original price} = £174.96 \div 1.08 = £162$$

✓ £136

Q2 · ● Developing · 3 marks

METHOD

$$\text{Multiplier} = 1 + 8/100 = 1.08$$

$$\text{Original price} = £146.88 \div 1.08 = £136$$

✓ 1/6

Q3 · ● Developing · 4 marks

METHOD

$$3 \frac{1}{2} = \frac{7}{2}, 3 \frac{1}{3} = \frac{10}{3}$$

$$\text{Common denominator} = 6$$

$$= \frac{21}{6} - \frac{20}{6} = \frac{1}{6}$$

✓ 4 4/15

Q4 · ● Developing · 4 marks

METHOD

$$5 \frac{3}{5} = \frac{28}{5}, 1 \frac{1}{3} = \frac{4}{3}$$

$$\text{Common denominator} = 15$$

$$= \frac{84}{15} - \frac{20}{15} = \frac{64}{15} = 4 \frac{4}{15}$$

✓ £55

Q5 · ● Developing · 3 marks

METHOD

$$\text{Multiplier} = 1 + 15/100 = 1.15$$

$$\text{Original price} = £63.25 \div 1.15 = £55$$

✓ 8 29/35

Q6 · ● Developing · 4 marks

METHOD

$$5 \frac{2}{5} = \frac{27}{5}, 3 \frac{3}{7} = \frac{24}{7}$$

Common denominator = 35

$$= \frac{189}{35} + \frac{120}{35} = \frac{309}{35} = 8 \frac{29}{35}$$

✓ £64

Q7 · ● Developing · 3 marks

METHOD

$$\text{Multiplier} = 1 + \frac{12}{100} = 1.12$$

$$\text{Original price} = \pounds 71.68 \div 1.12 = \pounds 64$$

✓ 19/20

Q8 · ● Developing · 4 marks

METHOD

$$2 \frac{1}{5} = \frac{11}{5}, 1 \frac{1}{4} = \frac{5}{4}$$

Common denominator = 20

$$= \frac{44}{20} - \frac{25}{20} = \frac{19}{20}$$

✓ £382

Q9 · ● Developing · 3 marks

METHOD

$$\text{Multiplier} = 1 - \frac{20}{100} = 0.8$$

$$\text{Original price} = \pounds 305.60 \div 0.8 = \pounds 382$$

✓ 5 11/21

Q10 · ● Developing · 4 marks

METHOD

$$1 \frac{4}{6} = \frac{10}{6}, 3 \frac{6}{7} = \frac{27}{7}$$

Common denominator = 42

$$= \frac{70}{42} + \frac{162}{42} = \frac{232}{42} = \frac{116}{21} = 5 \frac{11}{21}$$

✓ £7075.90

Q11 · ● Secure · 4 marks

METHOD

$$\text{Multiplier} = 1 + 8/100 = 1.08$$

$$\text{Value} = 5201 \times 1.08^4 = \text{£}7075.90$$

✓ £2001.88

Q12 · ● Secure · 4 marks

METHOD

$$\text{Multiplier} = 1 + 3/100 = 1.03$$

$$\text{Value} = 1832 \times 1.03^3 = \text{£}2001.88$$

✓ £1977.87

Q13 · ● Secure · 4 marks

METHOD

$$\text{Multiplier} = 1 - 8/100 = 0.92$$

$$\text{Value} = 2540 \times 0.92^3 = \text{£}1977.87$$

✓ 25/33

Q14 · ● Secure · 3 marks

METHOD

$$\text{Let } x = 0.7575...$$

$$100x = 75.7575...$$

$$100x - x = 75, \text{ so } 99x = 75$$

$$x = 75/99 = 25/33$$

✓ £8105.65

Q15 · ● Secure · 4 marks

METHOD

$$\text{Multiplier} = 1 + 6/100 = 1.06$$

$$\text{Value} = 7214 \times 1.06^2 = \text{£}8105.65$$

✓ £3215.46

Q16 · ● Secure · 4 marks

METHOD

$$\text{Multiplier} = 1 - 4/100 = 0.96$$

$$\text{Value} = 3489 \times 0.96^2 = \pounds 3215.46$$

✓ 4/9

Q17 · ● Secure · 3 marks

METHOD

$$\text{Let } x = 0.444...$$

$$10x = 4.444...$$

$$10x - x = 4, \text{ so } 9x = 4$$

$$x = 4/9$$

✓ £5294.37

Q18 · ● Secure · 4 marks

METHOD

$$\text{Multiplier} = 1 + 2/100 = 1.02$$

$$\text{Value} = 4989 \times 1.02^3 = \pounds 5294.37$$

✓ £4233.72

Q19 · ● Secure · 4 marks

METHOD

$$\text{Multiplier} = 1 + 6/100 = 1.06$$

$$\text{Value} = 3768 \times 1.06^2 = \pounds 4233.72$$

✓ 1/3

Q20 · ● Secure · 3 marks

METHOD

$$\text{Let } x = 0.333...$$

$$10x = 3.333...$$

$$10x - x = 3, \text{ so } 9x = 3$$

$$x = 3/9 = 1/3$$

✓ £1547.28, overall change 26%

Q21 · ● Greater Depth · 5 marks

METHOD

Multiplier 1 = 1.2, multiplier 2 = 1.05

Final amount = $1228 \times 1.2 \times 1.05 = £1547.28$

Overall multiplier = $1.2 \times 1.05 = 1.26$

Overall percentage change = 26%

✓ 15/32

Q22 · ● Greater Depth · 4 marks

METHOD

$1\frac{1}{4} = \frac{5}{4}$, $2\frac{4}{6} = \frac{16}{6}$

$\frac{5}{4} \div \frac{16}{6} = \frac{30}{64} = \frac{15}{32}$

✓ £1575.43, overall change
-19.25%

Q23 · ● Greater Depth · 5 marks

METHOD

Multiplier 1 = 0.95, multiplier 2 = 0.85

Final amount = $1951 \times 0.95 \times 0.85 = £1575.43$

Overall multiplier = $0.95 \times 0.85 = 0.8075$

Overall percentage change = -19.25%

✓ 11 1/4

Q24 · ● Greater Depth · 4 marks

METHOD

$2\frac{3}{6} = \frac{15}{6}$, $4\frac{2}{4} = \frac{18}{4}$

$\frac{15}{6} \times \frac{18}{4} = \frac{270}{24} = \frac{45}{4} = 11\frac{1}{4}$

✓ £1416.80, overall change -8%

Q25 · ● Greater Depth · 5 marks

METHOD

Multiplier 1 = 1.15, multiplier 2 = 0.8

Final amount = $1540 \times 1.15 \times 0.8 = £1416.80$

Overall multiplier = $1.15 \times 0.8 = 0.92$

Overall percentage change = -8%

✓ £931.25, overall change 56.25%

Q26 · ● Greater Depth · 5 marks

METHOD

Multiplier 1 = 1.25, multiplier 2 = 1.25

Final amount = $596 \times 1.25 \times 1.25 = £931.25$

Overall multiplier = $1.25 \times 1.25 = 1.5625$

Overall percentage change = 56.25%

✓ $1/2$

Q27 · ● Greater Depth · 4 marks

METHOD

$1\frac{1}{4} = \frac{5}{4}$, $2\frac{1}{2} = \frac{5}{2}$

$\frac{5}{4} \div \frac{5}{2} = \frac{10}{20} = \frac{1}{2}$

✓ $10/21$

Q28 · ● Greater Depth · 4 marks

METHOD

$1\frac{4}{6} = \frac{10}{6}$, $3\frac{1}{2} = \frac{7}{2}$

$\frac{10}{6} \div \frac{7}{2} = \frac{20}{42} = \frac{10}{21}$

✓ $21\frac{17}{20}$

Q29 · ● Greater Depth · 4 marks

METHOD

$4\frac{3}{5} = \frac{23}{5}$, $4\frac{3}{4} = \frac{19}{4}$

$\frac{23}{5} \times \frac{19}{4} = \frac{437}{20} = 21\frac{17}{20}$

✓ £1270.53, overall change -14.5%

Q30 · ● Greater Depth · 5 marks

METHOD

Multiplier 1 = 0.9, multiplier 2 = 0.95

Final amount = $1486 \times 0.9 \times 0.95 = £1270.53$

Overall multiplier = $0.9 \times 0.95 = 0.855$

Overall percentage change = -14.5%