



GCSE Foundation/Higher 05

Number



Mark scheme



88 minutes



78 marks

Percentages

M1.	(a) Interview or questionnaire or (phone / internet / postal) survey or suitable voting method (e.g. everyone presses buttons or uses ballot boxes) oe	B1	[5]
	(b) Which (of the routes) do you prefer? oe eg accept better for prefer	B1	
	Option A, Option B, don't know oe	B1	
	(c) 0.27×200 oe	M1	
	54 SC1 146	A1	
M2.	(a) $\frac{19}{147} \times 100$ oe	M1	[5]
	12.92(...) or 12.93 Accept 13 with M1 working seen	A1	
	12.9 ft any value > 1 dp correctly rounded to 1 dp or their calculation given to 1 dp SC1 13 (answer only)	B1 ft	

- (b) (i) Stem (0), 1, 2, 3 and 4
and
suitable key
Accept 4, 3, 2, 1, (0)

B1

Leaves

1 2 3 4 6 7 8 8

0 1 6 7 9

1 2 3 8

5

1

B1 4 rows correct

B1 complete but unordered leaves

B2

Stem, leaves and aligned correctly

Strand (ii)

Logical, organised order of working

Q1

- (ii) 8

B1

- (iii) 0

Accept 'none' or 'zero'

B1

- (c) Ticks the 19 late trains only

B1

States mode should now be 7

oe eg one minute less

SC1 wrong or no box ticked and states new mode is 7

B1 dep

[11]

M3. $\frac{6}{100} \times 23.5(0) (= 1.41)$
oe

M1

their $1.41 + 23.5(0) (= 24.91)$

oe $1.06 \times 23.5(0)$ M2

M1 dep

their $24.91 \times 4 (= 99.64)$

or

$100 \div \text{their } 24.91 (= 4.(\dots))$

$100 \div 4 (= 25)$

M1

Yes and 99.64

or

Yes and 4.(\dots)

Yes and 24.91 (<) 25

A1

Alternative method 1

$4 \times 23.5(0) (= 94)$

M1

$\frac{6}{100} \times \text{their } 94 (= 5.64)$ or $100 - \text{their } 94 (= 6)$

oe

M1

their $94 + \text{their } 5.64 (= 99.64)$

or

$\frac{\text{their } 6}{\text{their } 94} \times 100 (= 6.(\dots))$

oe 1.06×94 M3 dep on second M1

M1 dep

Yes and 99.64 or Yes and 6.(\dots)

A1

Alternative method 2

$100 \div 4 (= 25)$

M1

their $25 - 23.5(0) (= 1.5(0))$

M1

$\frac{\text{their } 1.5(0)}{23.5(0)} \times 100 (= 6.(\dots))$

M1

Yes and 6.(\dots)

A1

[4]

M4. 7224

B1

$$\frac{2}{3} \times 11\,100 \text{ or } \frac{3}{4} \times 9600$$

oe

$$11\,100 \div 3 = 3700$$

11 100 – their 3700

or

$$9600 \div 4 = 2400$$

9600 – their 2400

Allow 0.33 or better or [0.66, 0.67] for decimals

M1

7400

A1

7200

A1

Offer 3

Correct ft decision if M1 awarded

A1 ft

[5]

M5. 60 seen

B1

$$\text{their } 60 - \frac{20}{100} \times \text{their } 60 \text{ or } 48$$

$$\text{oe eg } \frac{80}{100} \times \text{their } 60$$

M1

Yes and 48 seen

Using 70 and getting 56,

hence 'no' scores M1 A1

56 with no conclusion is M1A0

SC1 for 12 and Yes

A1 ft

[3]

M6. 17.5 – 15 (= 2.5)

M1

Correct method for finding 2.5% of 140

$$\text{eg, } 1\% = 140 \div 100 (= 1.4)$$

$$\text{Their } 1.4 \times 2 + \text{their } 1.4 \div 2$$

M1

3.50

Strand (i)
Correct notation required
Do not accept 3.5

Q1

Alternate method

Correct method for finding 15% of 140
eg, $10\% = 140 \div 10 (= 14)$
Their $14 + \text{their } 14 \div 2$

M1

Correct method for finding 17.5% of 140 and subtracts
Their $15\% + (\text{their } 14 \div 2) \div 2$

M1

3.50

Strand (i)
Correct notation required
Do not accept 3.5

Q1

[3]

M7. (a) 1000

B1

(b) $15\,000 \div 1200 (= 12.5 \text{ km/£})$
 $1200 \div 15\,000 (= 0.08 \text{ £/km})$
 $1200 \times 1.1 (= 1320)$

M1

$20\,000 \div \text{their } 12.5 (= 1600)$
Their $0.08 \times 20\,000 (= 1600)$
Their $1320 \div 15\,000 (= 0.088)$
 $0.08 \times 1.1 (= 0.088)$

M1 dep

Their $1600 \times 0.1 (= 160)$
or their 1600×1.1
Their $0.088 \times 20\,000$

M1 dep

1760

A1

Alt

$$20\,000 \div 10\,000 \text{ or } 2$$

M1

$$2 \times 800 \text{ or } 1600$$

M1 dep

$$1600 \times 1.1$$

M1 dep

$$1760$$

A1

[5]

M8. $30 \times 105 (= 3150)$

$$\frac{2600}{105} (= 24.7 \dots) \quad 550 \text{ seen M1}$$

M1

Their $\frac{2600}{3150} \times 100$

Use their 3150 as long as more than 2600

$$\text{Their } \frac{24.7 \dots}{30} \times 100$$

Their 24.7 must be less than 30

M1 dep

$$82.5(3968 \dots)$$

A1

$$83$$

ft Any number of 1dp or more

Accept 83 for 4 marks unsupported

B1ft

[4]

M9. 700 – 460 (= 240)

$$\frac{700}{460} \times 100$$

M1 For correct build up to £699.20 and answer 52

M1

$$\frac{\text{Their } 240}{460} \times 100$$

$$\text{Their } \frac{700}{460} \times 100 - 100 \text{ or } 52(.1739 \dots)$$

M1 dep

52(.1739 ...)

52.2

3 marks for correct build up which convinces regarding missing 80 p

A1

[3]

M10. Total reduction £6 + £1 (= £7)

25% of £4 = £1, 25% of 40% = 10%

75% of 40% = 30%

M1

Hence Jill plus justification

eg £7 is 70% of £10

60% + 10% = 70%, 85% off £10 = £1.50

A1

[2]

M11. (a) 520 × 3 ÷ 4

M1

£390

A1

(b) Their(a)/520 × 100

$$\frac{3}{4} \times 100$$

M1

75

A1 ft

[4]

M12. 5×5 or 3×3

M1

$$5 \times 5 - 3 \times 3$$

$$\text{or } 9 \div 25 \times 100 \text{ or } 9 \times 4 \text{ oe}$$

M1

$$(\text{their } 16) \div (\text{their } 25) \times 100 \text{ oe}$$

$$\text{or } 16 \times 4 \text{ or } 100 - 36$$

M1 dep

$$64$$

$$\text{SC3 } 36$$

A1

[4]

M13. (a) $30 \times 12 \times 4$

M1

$$1440$$

A1

(b) 10×30

$$\text{or } 279 \div 30 (\times 5)$$

M1

$$279 \div (\text{their } 300) \times 100$$

$$\text{or } (\text{their } 9.3) \div 10 \times 100 \text{ or}$$
$$(\text{their } 46.5) \div 50 \times 100$$

M1

$$93$$

$$\text{SC2 for } 7$$

A1

[5]

M14. (a) (i) $30 \times 12 \times 4$

M1

$$1440$$

A1

(ii) 4×30 or 4×12

M1

$$2 \times (\text{their } 120) + 2 \times (\text{their } 48) \text{ only}$$
$$\text{oe}$$

M1 dep

$$336$$

A1

(b) 10×30

or $279 \div 30 (\times 5)$

M1

$(279 \div (\text{their } 300) \times 100$

or $(\text{their } 9.3) \div 10 \times 100$ or $(\text{their } 46.5) \div 50 \times 100$

M1

93

SC2 for 7

A1

[8]

M15. (a) $0.12 \times 385 (= 46.2)$

1.12 seen

Build up: $10\% = 385 \div 10 (= 38.5)$

$2\% = (38.5) \div 5 (= 7.7)$

and adds

M1

$385 + \text{their } 46.2$

1.12×385

M1 dep

431.2(0)

SC2 Answer 61.6

SC2 Answer 431 with no working

A1

(b) $164 \div 2 \frac{1}{2}$ or $164 \div 2.5$

M1

65.6

Answer of 65 or 66 with no working implies M1

A1

[5]

M16. (a) 50% of 96

25% of 96

$12\frac{1}{2}\%$ of 96 **and** attempt at sum

*Must find 3 values
ft and allow 1 error in the 3 values*

M1

84

84 with no working is M0

A1

(b) $(6\frac{1}{4})$ is half of $12\frac{1}{2}$
 $6\frac{1}{4}\% = 15$ (need to see both)

B1

Add this extra amount on

SC1 Obtains the value 225

B1 dep

[4]

M17. 28 000 – 5000 (= 23 000)

M1

0.2 × their 23 000

oe

M1 dep

4600

A1

[3]

