



GCSE Foundation 13

Algebra



98 minutes



93 marks

Formulae

M1. (a) 24

B1

(b) $7c + 3d$ or $3d + 7c$

B1 for $7c$ or $3d$

Do not ignore further working

B2

(c) 3×4 and 5×-2 or 12 and -10
oe

M1

2

A1

[5]

M2. 5×3 and $(-) 4 \times \frac{1}{2}$
Or 15 and $(-) 2$

M1

13

A1

[2]

M3. $n^2 - 1$ worked out correctly for at least one value of n
 $0, 3, 8, 15, 24, 35 \dots$

M1

A correct calculation eg $6^2 - 1 = 35 (= 7 \times 5)$ or $8^2 - 1 = 63 (= 7 \times 9)$
oe

If incomplete eg $6^2 - 1$ or $n = 6$ award M1 A0

A1

[2]

M4. $20 \times 12 (+ 30)$ or 240 seen

M1

their $240 + 30$

their 240 must be an attempt at multiplication

M1 dep

270

A1

[3]

M5. (a) $2 \times 5 (+) 3 \times 8$ or 10 or 24

M1

34

A1

(b) $6m - 12$ or $5m + 10$

M1

$11m - 2$

A1

[4]

M6. (a) 16 or 9 seen

M1

7 (is prime)

A1

(b) Two different correct solutions

eg $x = 2, y = 1$ $x = 3, y = 2$

$x = 6, y = 5$ $x = 10, y = 9$

B2 for one correct solution

B1 for one correct trial

B3

[5]

M7. $15 + 7 \times 40$ or 295

7×40 or 280

M1

(their) $295 \div 60$ or 4 h 55 m

(their) $280 \div 60$ or 4 h 40 m

oe

M1

12:45 – (their) 4 h 55 m

12:45 – (their) 4 h 40 m – 15 m

M1

07:50

oe

SC3 08:05

A1

[4]

M8.	(a) 12	B1	[8]
	(b) $(4 + 10) \div 2$	M1	
	7	A1	
	(c) $4a + 8b$ or $4(a + 2b)$ <i>B1 for one term correct</i>	B2	
	(d) $5w + w = 9 - 6$ <i>Allow one sign error</i>	M1	
	$6w = 3$ <i>For collecting like terms ft their first line</i>	M1	
	$\frac{1}{2}$ <i>oe Accept $\frac{3}{6}$</i>	A1	

M9.	(a) 24×10 or 240 seen $16 + 24 \times 10$	M1	[6]
	256	A1	
	(b) 2 (years)	B1	
	(c) $600 = 120 + 24m$ or $600 - 120$ <i>See 480</i>	M1	
	$480 = 24m$ or their $480 \div 24$ $\frac{480}{24}$	M1 dep	
	20	A1	

- M10.** (a) $(500 - 300) \times 6$
 or 200×6
 or (£) 12
 or 1200
 $(250 - 100) \times 10$
 or 150×10
 or (£) 15
 or 1500

Option 1

M1

(£) 27 or 62 or 24 or 59

Accept pence

A1

$(500 - 100) \times 6$ or 400×6

Option 2

M1

(£) 27 and 24 or 62 and 59

Accept pence

A1

Option 2 (cheaper)

B1 ft

(b) (i) £ 25

B1

150

B1

(ii) Attempt to read one coordinate between 150 and 500

$\pm £1$

eg, 250, 30

(500, £41.50 - 43.50 inclusive)

Allow 350, 42.5 (± 1)

Not (150, 25)

M1

Correct statement

eg, £1 for 20 mins

£2 for 40 mins

£5 for 100 mins

£10 for 200 mins

Their £17.50 (± 1) for 350 mins

(Their change -25) **and** (their mins - 150)

0.05

M1 dep

5

£0.05

A1

[10]

M11. (a) $7 (+) 6 (+) 15$

M1

28

A1

(b) $7 \times 3 \times 5$

M1

105

A1

(c) 0

B1

[5]

M12. (a) 10×32 or $10 \div 40$
oe

M1

$10 \times 32 \div 40$ or 8

M1 dep

24

A1

(b) $7 = 14 \times \text{Original} \div 40$ or 7×40 or $7 \div 14$
oe

M1

$7 \times 40 \div 14$
oe

M1 dep

20

A1

[6]

M13. $(5x) = 20$

or $x = 4$ seen

B1

$(5 - 8) \div 3$

Allow $5 - 8 \div 3$ or $3y = -3$

M1

$(y =) -1$

A1

$3 \times (\text{their}) 4x - (\text{their}) -1$

M1

13

*ft (their) x or $x = 4$ **and** (their) y*

A1ft

[5]

M14. (a) $2x + 3y + 4x + 2y + 3x + 5x + y$

14x or 6y seen

M1

$14x + 6y$

A1

(b) 'Their 14' $\times 4$ + 'their 6' $\times y = 68$

M1

'Their 6y' = 'their 12'

M1

$(y =) 2$

ft Their answer for (a) with 2 terms

A1ft

[5]

M15.	(a) (i) Kite	B1
	(ii) Trapezium	B1
	(b) Rectangle drawn	B1
	(c) Equilateral triangle drawn <i>2 possible sizes</i>	B1
	(d) $P = 2 \times 3 + 2 \times 5.2$ $6 + 10.4, 2 \times 8.2$	M1
	16.4	A1
	(e) Method 1 Attempt to compare using equilateral triangles/rhombi	
	Method 2 Using formulae	
	<i>Method 1 eg, 2 bottom halves equal and lines drawn</i>	
	<i>Method 2 eg, $b \times h$ for rhombus or $\frac{1}{2}b \times h$ for triangle</i>	B1
	Complete argument	
	<i>Method 1 Show that both top halves are $\frac{1}{2}$ of a rhombus or are the same</i>	
	<i>Method 2 Using both formulae and triangle has double the base (or height) oe</i>	
	<i>B2 Complete hexagon on diagram and show each is 1/3 of hexagon</i>	B1
		[8]
M16.	(a) $(27 + 3) \div 5$ <i>or $30 \div 5$ or $5 \times 6 - 3$</i>	M1
	6	A1
	(b) $5(x + 2)$ <i>oe</i> <i>B1 $x + 2$ or $5 \times$ (their $x + 2$) or $5x + 2$</i>	B2
		[4]

M17. (a) 5

B1

(b) $5 \times 100 (= £5)$
Or $5 + 5$

M1

10

A1

(c) $£2.50 \div 5$
 $250 \div 5$; their $(7.50 - 5) \div 5$ if shown

M1

50

A1

[5]

M18. (a) $3x + 7y$
B1 for 1 term correct

B2

(b) $5 \times 4 (+) 2 \times -7$ or sight of 20 and -14

M1

6

A1

(c) $25 (-) 9$

M1

16

A1

[6]

