

1. (a) 17.9867 2

$$4.1^2 \times 1.07 = 16.81 \times 1.07$$

M1 for (4.1) followed by squaring, or sight of 16.81

A1 cao

SC: B1 for 18 or better with no working

(b) $(1.6 + 3.8 \times 2.4) \times 4.2$ 1

B1 cao

Allow additional brackets if they give an expression with value 45.024

[3]

2. (a) 8 2

$$7x = 56$$

M1 for $7x = 56$, $7x = 74 - 18$

A1 cao

(b) 6.5 2

$$8y - 20 = 32 \quad \text{or} \quad 2y - 5 = 8$$

$$8y = 52 \quad \quad \quad 2y = 13$$

M1 for $8y - 20 = 32$ or $2y - 5 = 8$ or $2y - 5 = \frac{32}{4}$

A1 cao

(c) $\frac{5}{8}$ 3

$$8p + 7 = 12 \quad \text{or} \quad 5p = 5 - 3p$$

$$8p = 5 \quad \quad \quad 8p = 5$$

M1 for $12 - 3p$

M1 for $8p + 7 = 12$ or $5p = 5 - 3p$ or $8p = 5$ (ft) at least letters or numbers simplified

A1 cao oe

[7]

3. Distance \div time: $1400 \div 2 \text{ h } 20 \text{ min}$
 20 mins is $\frac{1}{3}$ hour
 $1400 \times 3 \div 7 = 600 \text{ kph}$ 3

B1 20 mins as $\frac{1}{3}$ hour or as 0.33.....hour

M1 for distance \div time eg $1400 \div "2\text{h } 20 \text{ min}"$

A1 cao

or

B1 2 hour 20min = 140 (min)

M1 Speed = $\frac{1400}{140} = (10 \text{ km per minute})$

A1 cao

[3]

4. (a) 7 2
 $3 \times 5 + 4 - 2$

M1 for $3 \times 5 + 4 \times -2$

A1 cao

- (b) $3\frac{1}{2}$ oe 3

$$4x - 3 = 11$$

$$4x = 11 + 3$$

M1 for $4x - 3 = 11$

M1 for $4x = 11 + 3$

A1 for $3\frac{1}{2}$ oe

- (c) $7n - 21$ 1

B1 cao

[6]

5. 9720

3

$$\frac{10}{100} \times 12000 = 1200$$

$$12\,000 - 1200 = 10\,800$$

$$10\,800 \div 10 = 1080$$

$$10\,800 - 1080 = \pounds 9720$$

M1 for $\frac{10}{100} \times 12\,000$ or sight of 1200 or 2400 or 10 800 or 9600

M1 (dep) for $\frac{10}{100} \times (12\,000 - \frac{10}{100} \times 12\,000)$ or sight of 1080

A1 cao

Alternative markscheme

$$*M2 for $12000 \times \left(1 - \frac{10}{100}\right)^2$*$$

$$*(M1 for $12000 \times \left(1 - \frac{10}{100}\right)$)*$$

A1 cao

[3]

6. 102

4

Splits up shape e.g. into rectangle and triangle

$$9 \times 8 \text{ or } 72$$

$$\frac{1}{2} \times "12" \times "5" \text{ or } 30$$

M1 for splitting up shape

M1 (indep) for a correct method to find area of one part, e.g. 9×8 or 72

M1 for a correct method to find area of other part (s)

$$*e.g. $\frac{1}{2} \times "12" \times "5" \text{ or } 30$*$$

A1 cao

[4]

7. (a) 16 30

1

B1 Accept 4 30 pm Do not accept 4 30

(b) (i) 8.39 3
 $33.56 \div 4$ oe
M1 for $33.56 \div 4$ oe eg $3356 \div 4$, division by 2 twice
A1 cao

(ii) 9
B1 ft from "8.39" unless whole number of pounds

[4]

8. (a) $x + 10 + 2x + x + 90 + (x + 20) = 360$ 2
M1 for $x + 10 + 2x + x + 90 + x + 20$ or $5x + 120$ or an indication of adding the terms on the paper
A1 cao
NB: algebra seen in (b) can attract marks in (a)

(b) $5x + 120 = 360$
 $5x = 240$
 $x = 48$
 Smallest angle is $x + 10 = 58$ 3

M1 for simplifying to at least " $5x + 120 = 360$ " (their equation)
A1 $x = 48$ or 48 seen cao
B1 ft (adding 10)
NB: M1 A1 can be awarded if this work is seen in (a)

[5]

9. (a) (i) 450 3
 30×15
M1 for 30×15
A1 cao

(ii) 9
A1 ft from "450"

(b) $\frac{A}{50}$ 2

B2 $\frac{A}{50}$ oe
(B1 for $50n$ seen)

[5]

10.	$\pounds 1.70 \times 5$ 8.50		1	
		<i>B1 for 8.50 or £8.50p, but NOT for 8.5 or 8.05</i>		[1]
11.	(a) (i) 16	<i>B1 cao</i>	1	
	(ii) 8	<i>B1 cao</i>	1	
	(iii) 24	<i>B1 cao</i>	1	
	(b) (i) 3	<i>B1 cao</i>	1	
	(ii) -5	<i>B1 cao</i>	1	
				[5]
12.	5×500 $= 500$		2	
		<i>B2 for 490 or 500 or 510</i> <i>(B1 for either 5 or 5.0 or 100 seen)</i>		[2]
13.	(a) 2, 2, 3, 3, 3, 4, 4, 4, 5, 6 = 3.5		2	
		<i>M1 ordering the numbers (condone 1 error or omission)</i> <i>A1 cao</i>		
	(b) $36 \div 10 = 3.6$		2	
		<i>M1 sum of numbers $\div 10$</i> <i>A1 cao</i> <i>SC B1 for 3r 6</i>		

(c) $6 - 2 = 4$

1

B1 cao

[5]

14. (a) (i) 48

2

B1 cao

(ii) Alternate angles

B1 for alternate angles oe

(b) (i) 30

2

B1 cao

(ii) Corresponding angles

B1 for corresponding angles oe

[4]

15. (a) (i) $1 - 0.2 = 0.8$

3

B1 oe

(ii) $1 - (0.35 + 0.15 + 0.2) = 0.3$

M1 for $0.35 + 0.15 + 0.2$

A1 oe

(b) $0.15 \times 300 = 45$

2

M1 for 0.15×300

A1 cao

NB: $\frac{45}{300}$ M1 A0, 45 out of 300 gets M1 A1

[5]

16. (a) $\frac{31}{40}$ 2

$$\frac{16}{40} + \frac{15}{40}$$

M1 for $\frac{16}{40} + \frac{15}{40}$ correctly writing both fractions to a common denominator.

A1 for $\frac{31}{40}$ oe

(b) $2\frac{11}{12}$ 3

$$\frac{17}{3} - \frac{11}{4}$$

Or 5-2 & $\frac{2}{3} - \frac{3}{4}$ oe

$$\frac{68}{12} - \frac{33}{12} \text{ or } \frac{8}{12} - \frac{9}{12} \text{ oe}$$

M1 for correctly decomposing into non mixed numbers
M1 ft for correct method to write all fractions to a common denominator

A1 for $\frac{35}{12}$ oe single fraction or mixed number

SC: B3 for 2.916

(B1 for 5.6 – 2.75 oe decimals)

[5]

17. (a) $4a - 2a + 5b + b = 2a + 6b$ 2

B2 cao

(B1 for 2a or 6b seen)

(b) $x(x - 6)$ 2

B2 cao

(B1 for $x(ax + b)$ where a, b are numbers not equal to zero or $x - 6$ seen on its own, or part of an expression)

(c) $3x - 2x^3$ 2
B2 cao
(B1 for $3x$ or $2x^3$)

(d) $4x(3y + x)$ 2
B2 cao
(B1 for $2(6xy + 2x^2)$ or $4(3xy + x^2)$ or $x(12y + 4x)$ or $2x(6y + 2x)$ or $4x(\quad)$)

[8]

18. (a) 1632 1
B1 for 1632 or 1632.0

(b) 16.32 1
B1 for 16.32 cao

(c) 3.4 1
B1 for 3.4 cao

[3]

19. (a) 504 2
 $\frac{60}{100} \times 840$

M1 e.g. for $\frac{60}{100} \times 840$
A1 cao

(b) 80 2
 $480 \div 6$
M1 for $480 \div 6$ oe
A1 cao

(c) 680 2
 $10\% = 68, 20\% = 136$ or
 $\frac{100}{40}$ oe seen

M1 for $10\% = 68, 20\% = 136$ or $\frac{100}{40}$ oe seen
A1 cao

[6]