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

$8y - 20 = 32$ or $2y - 5 = 8$

$8y = 52$ $2y = 13$

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

A1 cao

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

$8p + 7 = 12$ or $5p = 5 - 3p$

$8p = 5$ $8p = 5$

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 ÷ time: 1400 ÷ 2 h 20 min

20 mins is $\frac{1}{3}$ hour

1400 × 3 ÷ 7 = 600 kph 3

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

M1 for distance ÷ time eg 1400 ÷ "2h 20 min"

A1 cao

or

B1 2 hour 20min = 140 (min)

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

A1 cao

[3]

4. (a) 7 2

3 × 5 + 4 – 2

M1 for 3 × 5 + 4 × –2
A1 cao

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

4*x* – 3 = 11
4*x* = 11 + 3

M1 for 4x – 3 = 11
M1 for 4x = 11 + 3

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

(c) 7*n* – 21 1

B1 cao

[6]

5. 9720 3

$\frac{10}{100} \times 12000 = 1200$
12 000 – 1200 = 10 800
10 800 ÷ 10 =1080
10 800 – 1080 = £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 × 8 or 72

$\frac{1}{2} \times "12" \times "5"$ 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. $\frac{1}{2} \times "12" \times "5"$ *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 ÷ 4 oe

M1 for 33.56 ÷ 4 oe eg 3356 ÷ 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. £1.70 × 5
8.50 1

B1 for 8.50 or £8.50p, but NOT for 8.5 or 8.05

[1]

11. (a) (i) 16 1

B1 cao

(ii) 8 1

B1 cao

(iii) 24 1

B1 cao

(b) (i) 3 1

B1 cao

(ii) –5 1

B1 cao

[5]

12. 5 × 500
= 500 2

B2 for 490 or 500 or 510
(B1 for either 5 or 5.0 or 100 seen)

[2]

13. (a) 2, 2, 3, 3, 3, 4, 4, 4, 5, 6 = 3.5

2

M1 ordering the numbers (condone 1 error or omission)
A1 cao

(b) 36 ÷ 10 = 3.6

2

M1 sum of numbers ÷ 10
A1 cao
SC B1 for 3r 6

(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

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