

Intermediate Tier		MARK SCHEME	Paper 1 of 5 from ZigZag Education	
1	$9 + 5 + 3 + 5 + 10 + 7 + 5 + 6 + 5 + 3 = 58$ $58 \div 10$ 5.8	M1 M1 A1	3 marks	
2	(a) $15x$ (b) (i) $x = 4$ (ii) $3x + 14 = 17$ $x = 1$ (c) 17	A1 A1 M1 A1 A1	5 marks	
3	(a) 27, 39, 45 (b) (i) 8 (ii) 100 (iii) 8	A1 for 1 out of 3 A2 A1 A1 A1	5 marks	
4	(a) (i) Isosceles (ii) Equilateral (b) (i) 1 (ii) 3	A1 A1 A1 A1	4 marks	
5	(a) 1500×7 10500 (b) Area of base = $50\text{cm} \times 20\text{cm}$ 1000cm ² Volume = Base area \times Height Height = $3000\text{cm}^3 \div 1000\text{cm}^2$ 3cm	M1 A1 M1 M1 M1 M1 A1	7 marks	
6	(a) $7r + 2s$ (b) $x(x+7)$ (c) (i) $3x + 5 = 9.5$ $3x = 4.5$ $x = 1.5$ (ii) $18 + 3x = 9x$ $18 = 6x$ $x = 3$	A1 A1 M1 M1 A1 M1 M1 A1	8 marks	
7	$900 \div 100$ 9	M1 A1	2 marks	
8	(a) 50km (b) (i) 3 hours (ii) 8 hours (iii) 25km per hour (iv) C to D	A1 A1 A1 A1 A1	5 marks	
9	(a) 1000m (b) 047°	A1 A1	2 marks	
10	(a) (i) 1200g (ii) 1200g (iii) 24 eggs (iv) 4 pints (b) (i) $43 - 3 - 7 - 7 - 7 - 3 = 16$ $16\text{cm} \div 4 = 4\text{cm}$ (ii) $4 \div 2 = 2$ $2^2 \times 3.14$ 12.56cm ²	A1 A1 A1 A1 M1 A1 M1 M1 A1	9 marks	

11. a) $x \leq 1$ A1
 b) $x = 3$ or -3 A1A1
 c) $\frac{x}{2} + \frac{x}{3} = 2$ $\times 6$ M1
 $3x + 2x = 12$ $5x = 12$ $x = 12/5 = 2.4$ A1
 d) $\frac{x+1}{2} + \frac{x}{3} = 1$ $\times 6$ M1
 $3x+3 + 2x = 6$ $5x = 3$ $x = 3/5 = 0.6$ A1 7 marks
12. a) i) 1, 5, 9, 13, **17, 21** A1
 ii) 2, 5, 10, 17, 26, **37, 50** A1
 b) i) $4n - 3$ A1
 ii) $n^2 + 1$ A1
 c) $100 \times 2 + 2 = 202$ A1
 d) $2n + 2$ A1 6 marks
13. a) $J = \text{area (ii)}$ A1
 b) $K = \text{length (i)}$ A1 2 marks
14. a) $120 = 2 \times 2 \times 2 \times 3 \times 5$ A1
 b) 0.00001234 A1
 c) $\frac{13.8 \times 0.022}{133} \approx \frac{10 \times 0.02}{100}$ numerator/denominator B1 or appropriate rounding
 $\approx \frac{0.2}{100} = 0.002$ accept 0.002 – 0.0028 A1 4 marks
15. a) Construction marks, correct $\pm 0.5\text{mm}$ B1A1
 b) Within 3cm AB, Bisector of angle B to give nearer AB than BC B1B1 4 marks
16. a) $1 + 3 = 4$
 $1 + 4 = 5$
 L.C.M. of 4 and 5 is 20 M1
 Therefore 20 balls A1
 b) tree diagram with probs $1/5$ and $4/5$ twice A1
 calculating probs at end of tree by **multiplication** B1
 $1/4 \times 1/5 = 1/20$ and $3/4 \times 4/5 = 12/20$ A1 for either
 adding probs to give $13/20$ A1 6 marks
17. ${}^3_7 \times x \leq 100$ M1
 $x = 233.333^r = 233$ complete panels A1 2 marks
18. a) Values– calculating a moving average M1
 $\pounds 2.00, \pounds 2.05, \pounds 2.10, \pounds 2.15, \pounds 2.20$ **A1 any two correct** A1 all correct
 b) The moving average **steadily increases** by $\pounds 0.05$ a quarter A1 4 marks
19. a) 1.5cm^2 A1
 b) $V = 1.5 \times 4 = 6\text{cm}^3$ A1
 c) scale factor = $12/4 = 3$ M1
 $x = 3 \times 3 = 9\text{cm}$ A1
 d) slanted length $\sqrt{10}$ A1
 $2 \times 1.5 + 12 + 4 + 4\sqrt{10} = 19 + 4\sqrt{10}$ (a = 19, b = 4, c = 10) A1A1 7 marks

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|-----|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------------------------|
| 20. | a) | bigger square has side $x+1$
change in Area = biggest – smallest
$= (x+1)^2 - x^2$
$= x^2 + 2x + 1 - x^2 = 2x + 1$ | B1
M1
M1
A1 | Allow reverse order |
| | b) | Let smaller square have side length = y
$x^2 - y^2 = 6x - 9$
$\therefore y^2 = x^2 - 6x + 9$
$\therefore y = \sqrt{x^2 - 6x + 9}$
$\therefore y = x - 3$ (ignoring $3 - x$)
\therefore perimeter = $4x - 12$ | M1

M1
A1
A1 | Allow LHS = $y^2 - x^2$

8 marks |

(50:50) **Total: 100 marks**