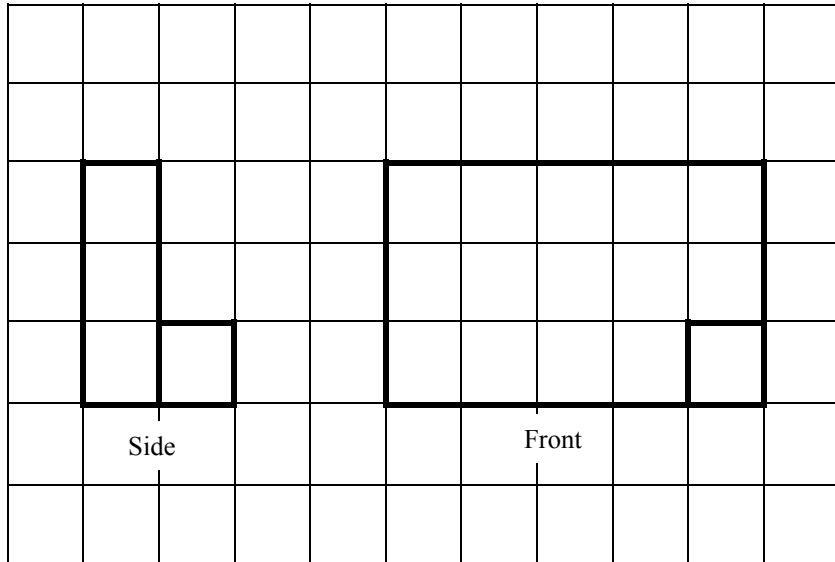


Intermediate Tier Calculator Paper		MARK SCHEME		Paper 1 of 5 from ZigZag Education	
1	(a)	$5 \times 4 \times 3$ 60cm^3	M1 A1	(1 mark for any face with working)	4 marks
	(b)	5×4 20cm^2	M1 A1		
2	(a)	(i) Rotation $\frac{1}{4}$ turn anticlockwise or $\frac{3}{4}$ turn clockwise, about origin	A1 A1		7 marks
		(ii) Enlargement Scale factor 3, from origin	A1 A1		
	(b)	$2.8 \times \frac{1}{2} \times (4.6 + 3.2)$ 10.92cm^2	M2 A1		
3	(a)	$65 / 2 = 32.5$ $119 / 4 = 29.75$ or equivalent	M1		10 marks
		$29.75 < 32.5$	M1		
		4 pints	A1		
	(b)	$45 / 250 = 0.18$ $160 / 1000 = 0.16$ or equivalent	M2		
		$0.16 < 0.18$	M1		
		1kg bag	A1		
(c)	$\pounds 800 \times 14\% = \pounds 112$	M1			
	$\pounds 800 - \pounds 112$	M1			
	$\pounds 688$	A1			
4	(a)	$450x + 650y$	A2		8 marks
	(b)	$6x = 24$	M1		
		$x = 4$	A1		
	(c)	(i) $y = 2x + 5$	A1		
		(ii) $y = 11$	A1		
		(iii) $2x = 12$	M1		
$x = 6$		A1			
5	(a)	21.55 to 2dp as required	A1		5 marks
	(b)	4.21 to 2dp as required	A1		
	(c)	$9.6 / 3.77$	M1		
		2.55 to 2dp as required	A1		
(d)	7.26 to 2dp as required	A1			
6	(a)	$63 / 360 \times 120$	M1		5 marks
		21	A1		
	(b)	angles in degrees (114, 78, 54, 66, 48)	M1		
		three or more sectors drawn correctly labelling of sectors	A1 A1		

7 (a)



Each elevation perimeter drawn correctly
extra square of both elevations drawn correctly

A1A1

A1

(b) $5 \times 3 + 1$
 16cm^3

M1

A1

5 marks

8 (a) 60

A1

(b) 48

A1

(c) $48/60 \times 100 = 80\%$

A1

(d) $12/60 = 1/5$

A1

4 marks

9. 19/100

A1

1 mark

10. (a) x^{10}

A1

(b) $2x^4$

A1

(c) x^{15}

A1

3 marks

11. (a) rotation of 180° (clockwise or anti-clockwise)
about $(\frac{1}{2}, 2)$

A1

A1

(b) translation of 4 units
in the x direction

A1

A1

(c) reflection in the line $x = \frac{1}{2}$

A1

5 marks

12. (a) right angled triangle
angle at circumference from a diameter

A1

A1

(b) isosceles triangle
tangents from a point are equal in length

A1

A1

(c) angle $DAC = x^\circ$
angle $BAC = (90 - x)^\circ$

M1

A1

6 marks

13. (a) $\frac{2}{2+3} \times \text{£}100$
 $\text{£}40$

M1

A1

(b) $\text{£}100 - \text{£}39.75 = \text{£}60.25$
 $b = (60.25 \div 39.75) \times 241$
 $b = 241$

M1

M1

A1

5 marks

14. area of triangular face = $\frac{1}{2} \times 8 \times 2 = 8\text{cm}^2$

M1

slant height = $\sqrt{2^2 + 4^2} = \sqrt{20}\text{cm}$

M1

surface area = $2 \times 8 + 2 \times 1.5 \times \sqrt{20} + 1.5 \times 8$

M1

41.4cm^2 (3sf) or better

A1

4 marks

15. (a) $m - 3 = 3j$ M1
 $j = \frac{1}{3}(m - 3)$ A1
- (b) $\frac{3V}{\pi} = r^3$ M1
 $r = \sqrt[3]{\frac{3V}{\pi}}$ A1
- (c) $pw - w = 1$ M1
 $w(p - 1) = 1$ M1
 $w = 1/(p - 1)$ A1 7 marks
16. (a) all points correctly plotted B1
(b) straight line drawn B1
accurate line drawn in appropriate position B1
(c) positive correlation (moderate) A1
(d) method lines seen on graph M1
60 – 68 A1 6 marks
17. (a) $(x+2)(x+3)$ A1
 $(x+2)(x+3) = 0, x = -2$ or $x = -3$ A1 A1
- (b) (i) $2x + 3 = 3x - 3$
 $x = 6$ M1A1
- (ii) $x = \frac{12}{14} = \frac{6}{7}$ A1
- (c) $2 + 3x < 17x$
 $2 < 14x$ M1
 $x > \frac{1}{7}$ A1 8 marks
18. (a)

x	-2	-1	0	1	2	3
$y = x^2 - 2x - 2$	6	1	-2	-3	-2	1
- all values correct A1
- (b) points correctly plotted A1
smooth curve drawn through points A1
- (c) $x = -0.75 \pm 0.05$, or between 2.75 ± 0.05
(numerical is -0.73, 2.73). A1A1ft 5 marks
19. $\frac{120}{x} + \frac{120}{x+10}$ (hours) B1 for either expression seen +A1

2 marks

Total: 100