

Using Length, Area and Volume in Calculations L2 Mark Scheme		
<b>1</b>	Perimeter of three sides of garden $= 8 + 11 + 8 = 27 \text{ m}$	[1]
	Length of fencing needed $= 27 - 0.8 = 26.2 \text{ m}$	[1]
<b>2</b>		
	Kitchen area $= 3 \times 2.5 = 7.5 \text{ m}^2$ Tile area $= 0.5 \times 0.5 = 0.25 \text{ m}^2$	[1] Alternative method: $3 \div 0.5 = 6$ tiles long $2.5 \div 0.5 = 5$ tiles wide
	$7.5 \div 0.25 = 30$ kitchen tiles needed	[1] Alternative method cont.: $6 \times 5 = 30$ tiles needed
<b>3</b>		
	Big rectangle area $= 80 \times 50 = 4000 \text{ m}^2$ Small rectangle area $= 15 \times 20 = 300 \text{ m}^2$	[1] Alternative method: Area $= 60 \times 50 + 20 \times 35$
	Area of field $= 4000 - 300 = 3700 \text{ m}^2$	[1] Alternative method cont. Area $= 3700 \text{ m}^2$
	Time $= 3700 \div 50 = 74$ minutes	[1]
<b>4</b>		
	Area of lawn $= 7.2 \times 4.5 = 32.4 \text{ m}^2$ Area of lawn feed coverage $= 2 \times 32.4 = 64.8 \text{ m}^2$	[1]
	$64.8 \div 20 = 3.24$ kg of lawn feed needed	[1]
	So, Mila will need 2 boxes (since 1 box is 2.5 kg)	[1]
	Cost $= 2 \times \text{£}6.99 = \text{£}13.98$	[1]
<b>5</b>		
	Volume of ice cube $= 2 \times 2 \times 3 = 12 \text{ cm}^3$	[1]
	$1500 \div 12 = 125$ ice cubes made	[1]
	$125 \div 12 = 10.41 \dots$ so 11 trays will be needed	[1]
<b>6</b>		
	50% depth $= 0.5 \times 0.5 = 0.25 \text{ m}$	[1]
	Volume of water $= 2 \times 1.5 \times 0.25 = 0.75 \text{ m}^3$	[1]
	Time to fill pool $= 0.75 \div 0.05 = 15$ minutes	[1]

<b>7</b>	Circumference of semicircle = $2\pi r \div 2 = \pi r$ = $3.14 \times 25 = 78.5$ m	[1]
	Perimeter of track = $78.5 + 78.5 + 100 + 100$ = 357 m	[1]
	12 km = 12000 m	[1]
	$12000 \div 357 = 33.61 \dots$ so 34 full laps	[1]
<b>8</b>	Garden area = $12 \times 20 = 240$ m <sup>2</sup> Patio area = $\frac{1}{2} \times 10 \times 5 = 25$ m <sup>2</sup>	[1]
	Pond area = $\pi r^2 = 3.14 \times 2.5^2 = 19.625$ m <sup>2</sup>	[1]
	Grass area = $240 - 25 - 19.625 = 195.375$ m <sup>2</sup>	[1]
	$195.375 \times 10 = 1953.75$ litres of water needed	[1]
<b>9</b>	Rectangle area = $14 \times 18 = 252$ cm <sup>2</sup> Semicircle area = $\frac{1}{2}\pi r^2 = \frac{1}{2} \times 3.14 \times 7^2 = 76.93$ cm <sup>2</sup>	[1]
	Total area = $252 + 76.93 = 328.93$ cm <sup>2</sup>	[1]
	Capacity = $328.93 \times 25 = 8223.25$ cm <sup>3</sup>	[1]
	Volume of slush = $0.8 \times 8223.25 = 6578.6$ cm <sup>3</sup>	[1]
	Number of drinks = $6578.6 \div 300 = 21.92 \dots$ So Benny will sell 21 drinks	[1]
	$21 \times \text{£}1.50 = \text{£}31.50$ made	[1]