

Qu	Give one mark for each •	Illustration for awarding mark
1	<p>ans : 63·7 mg lost 4 marks</p> <ul style="list-style-type: none"> •¹ uses correct multiplier •² knows how to calculate amount left •³ finds amount remaining •⁴ calculates amount lost 	<ul style="list-style-type: none"> •¹ 0·88 •² $0·88^3 \times 200$ [or 3 individual calculations] •³ 136·3 •⁴ $200 - 136·3 = 63·7$ mg
2a	<p>ans : $4x + 5y = 3·88$ 1 mark</p> <ul style="list-style-type: none"> •¹ correct equation 	<ul style="list-style-type: none"> •¹ $4x + 5y = 3·88$
b	<p>ans: $3x + 2y = 2·14$ 1 mark</p> <ul style="list-style-type: none"> •¹ correct equation 	<ul style="list-style-type: none"> •¹ $3x + 2y = 2·14$
c	<p>ans : £1.28 4 marks</p> <ul style="list-style-type: none"> •¹ knows to use sim.equations •² prepares equations to solve •³ finds cost of 1 egg and 1 flake •⁴ answer 	<ul style="list-style-type: none"> •¹ evidence •² $12x + 15y = 11·64; 12x + 8y = 8·56$ •³ egg = 42p; flake = 44p •⁴ $(2 \times 42) + 44 = \text{£}1.28$
3	<p>ans : $\frac{26x - x^2}{5(x - 1)}$ 3 marks</p> <ul style="list-style-type: none"> •¹ correct denominator •² correct numerator •³ simplifies numerator 	<ul style="list-style-type: none"> •¹ $5(x - 1)$ •² $25x - x(x - 1)$ •³ $\frac{26x - x^2}{5(x - 1)}$
4a	<p>ans : 250cm^3 1 mark</p> <ul style="list-style-type: none"> •¹ finds volume and rounds 	<ul style="list-style-type: none"> •¹ $15 \cdot 2 \times 4 \cdot 8 \times 3 \cdot 4 = 250 \text{ cm}^3$ [2 sig.figs.]
b	<p>ans : 1·34 cm 4 marks</p> <ul style="list-style-type: none"> •¹ finds volume of 1 sphere •² substitutes values in formula •³ re-arranges to r^3 •⁴ takes cube root 	<ul style="list-style-type: none"> •¹ $250 \div 25 = 10 \text{ cm}^3$ •² $10 = \frac{4}{3}\pi r^3$ •³ $r^3 = 2 \cdot 387324 \dots$ •⁴ $r = 1 \cdot 34 \text{ cm}$
5	<p>ans : 96° 2 marks</p> <ul style="list-style-type: none"> •¹ knows $\angle BPA$ is right angled •² knows AB is axis of symmetry 	<ul style="list-style-type: none"> •¹ $\angle BAP = 90 - 42 = 48^\circ$ •² $\angle PAQ = 96^\circ$
6a	<p>ans : 7, 15, 23, 28, 31, 33, 34 1 mark</p> <ul style="list-style-type: none"> •¹ cumulative frequency completed 	<ul style="list-style-type: none"> •¹ 7, 15, 23, 28, 31, 33, 34
b	<p>ans: 13 years 1 mark</p> <ul style="list-style-type: none"> •¹ median identified 	<ul style="list-style-type: none"> •¹ 13 years

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7	ans : 54.5cm^2 or 54.4cm^2 2 marks <ul style="list-style-type: none"> •¹ uses correct fraction •² answer 	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <u>Using π</u> <ul style="list-style-type: none"> •¹ $\frac{135}{360} \times \pi \times 6.8^2$ •² 54.5cm^2 </div> <div style="text-align: center;"> <u>Using 3.14</u> <ul style="list-style-type: none"> •¹ $\frac{135}{360} \times 3.14 \times 6.8^2$ •² 54.4cm^2 </div> </div>
8a	ans : $P = 3W + 5$ 3 marks <ul style="list-style-type: none"> •¹ finds gradient •² finds y - intercept •³ states equation of line 	<ul style="list-style-type: none"> •¹ $m = \frac{35 - 5}{10 - 0} = \frac{30}{10} = 3$ •² (0, 5) •³ $P = 3W + 5$
b	ans: 86 points 1 mark <ul style="list-style-type: none"> •¹ substitutes and evaluates 	<ul style="list-style-type: none"> •¹ $3 \times 27 + 5 = 86$
9	ans : 120 km 3 marks <ul style="list-style-type: none"> •¹ calculates missing angle •² evidence of Sine Rule with values •³ calculates required length 	<ul style="list-style-type: none"> •¹ $\angle A = 180 - (28 + 82) = 70^\circ$ •² $60/\sin 28^\circ = PQ/\sin 70^\circ$ •³ $PQ = 120 \text{ km}$
10	ans : 1.3 or -2.8 4 marks <ul style="list-style-type: none"> •¹ knows to use quadratic formula •² finds value of discriminant •³ substitutes correctly in formula •⁴ correctly rounded 	<ul style="list-style-type: none"> •¹ evidence •² $b^2 - 4ac = 3^2 - 4 \times 2 \times (-7) = 65$ •³ $\frac{-3 + \sqrt{65}}{4}$ or $\frac{-3 - \sqrt{65}}{4}$ •⁴ 1.3 or -2.8
11	ans : 60cm 4 marks <ul style="list-style-type: none"> •¹ assembles facts in right triangle •² knows to use Pythagoras •³ finds half the width •⁴ answer 	<ul style="list-style-type: none"> •¹ •² $50^2 - 40^2$ •³ 30cm •⁴ 60cm <div style="text-align: center; margin-top: 10px;"> </div>
12	ans : 20.4 3 marks <ul style="list-style-type: none"> •¹ calculates $(x - \bar{x})^2$ •² substitutes into formula •³ calculates standard deviation 	<ul style="list-style-type: none"> •¹ 56.25, 30.25, 210.25, 2.25, 1640.25, 132.25 •² $s = \sqrt{\frac{2071.5}{5}}$ •³ $s = 20.4$
13	ans: 3.8cm 4 marks <ul style="list-style-type: none"> •¹ knows to use cosine rule •² substitutes values correctly in formula •³ calculates value of p^2 correctly •⁴ takes square root 	<ul style="list-style-type: none"> •¹ evidence •² $p^2 = 3 \cdot 5^2 + 4 \cdot 5^2 - (2 \times 3 \cdot 5 \times 4 \cdot 5 \cos 55^\circ)$ •³ $p^2 = 14.43234 \dots$ •⁴ 3.8 (3.79899...)

