

Qu	Give one mark for each •	Illustration for awarding mark
1	<p>ans : £1 800 000 000 3 marks</p> <ul style="list-style-type: none"> •¹ finds missing angle •² makes fraction •³ answer 	<ul style="list-style-type: none"> •¹ 72° •² 72/360 •³ £1 800 000 000
2	<p>ans : gains £140.49 5 marks</p> <ul style="list-style-type: none"> •¹ uses correct multiplier •² answer •³ correct multiplier •⁴ answer •⁵ states gain 	<ul style="list-style-type: none"> •¹ × 0.95² •² £9025 •³ × 1.06² •⁴ £10 140.49 •⁵ gains £140.49
3a	<p>ans : 12 minutes 1 mark</p> <p>(i)</p> <ul style="list-style-type: none"> •¹ finds mean 	<ul style="list-style-type: none"> •¹ 72 ÷ 6 = 12 minutes
	<p>(ii)</p> <p>ans: 4.05 3 marks</p> <ul style="list-style-type: none"> •¹ finds $(\sum x)^2$ and $\sum x^2$ •² substitutes into formula •³ answer 	<ul style="list-style-type: none"> •¹ 5184, 946 •² $s.d. = \sqrt{\frac{946 - \frac{5184}{6}}{5}}$ •³ 4.05
b	<p>ans : appropriate comment 1 mark</p> <ul style="list-style-type: none"> •¹ makes appropriate comparison 	<ul style="list-style-type: none"> •¹ waiting times more consistent since SD is less
4	<p>ans : 62° 3 marks</p> <ul style="list-style-type: none"> •¹ recognises isosceles triangles •² knows tangent is perp. to radius •³ finds required angle 	<ul style="list-style-type: none"> •¹ ∠OLK = 28° •² ∠OLM = 90° •³ ∠KLM = 90 – 28 = 62°
5	<p>ans : 36.8cm 5 marks</p> <ul style="list-style-type: none"> •¹ uses correct fraction •² knows how to find arc length •³ uses correct diameter •⁴ finds perimeter of one section •⁵ finds total perimeter 	<ul style="list-style-type: none"> •¹ 40/360 •² × π × 6.8 = 2.4cm •³ 6.8 in formula •⁴ 2.4 + 3.4 + 3.4 = 9.2cm •⁵ 9.2 × 4 = 36.8cm
6	<p>ans : 113.7° 4 marks</p> <ul style="list-style-type: none"> •¹ knows to use the sine rule •² substitutes values and rearranges •³ finds acute angle •⁴ finds obtuse angle 	<ul style="list-style-type: none"> •¹ evidence •² sinQ = 19sin32°/11; sinQ = 0.915.... •³ 66.3° •⁴ 180 – 66.3 = 113.7°
7	<p>ans : $n = \sqrt{(k - 2)/5m}$ 3 marks</p> <ul style="list-style-type: none"> •¹ starts to rearrange •² continues rearranging •³ completes rearranging 	<ul style="list-style-type: none"> •¹ k - 2 •² ÷ 5m •³ final answer

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8	<p>ans : $y = -\frac{5}{3}x - 3$ 3 marks</p> <ul style="list-style-type: none"> •¹ rearranges equation •² selects appropriate information •³ states equation of line 	<ul style="list-style-type: none"> •¹ $y = -5/3x + 4/3$ •² $m = -5/3$ •³ $y = -5/3x - 3$
9	<p>ans : $k = 3$ 2 marks</p> <ul style="list-style-type: none"> •¹ correct substitution •² evaluates k 	<ul style="list-style-type: none"> •¹ $23 = k(3)^2 - 4$ •² $k = 3$
10	<p>ans : $\frac{15x^2+8}{10x}$ 2 marks</p> <ul style="list-style-type: none"> •¹ finds denominator •² finds numerator 	<ul style="list-style-type: none"> •¹ $10x$ •² $15x^2 + 8$
11a	<p>ans : 59° 2 marks</p> <ul style="list-style-type: none"> •¹ knows to use area of triangle formula •² answer 	<ul style="list-style-type: none"> •¹ $51.4 = 0.5 \times 12 \times 10 \times \sin x^\circ$ •² 59°
b	<p>ans : 11cm 3 marks</p> <ul style="list-style-type: none"> •¹ knows to use cosine rule •² substitutes values •³ answer 	<ul style="list-style-type: none"> •¹ evidence •² $12^2 + 10^2 - (2 \times 10 \times 12 \times \cos 59^\circ)$ •³ 11cm
12a	<p>ans : A(3, 2) 2 marks</p> <ul style="list-style-type: none"> •¹ correct x - coordinate •² correct y - coordinate 	<ul style="list-style-type: none"> •¹ (3, •², 2)
b	<p>ans: $x = 3$ 1 mark</p> <ul style="list-style-type: none"> •¹ correct equation 	<ul style="list-style-type: none"> •¹ $x = 3$ (must have $x =$)
c	<p>ans : $y = (x + 3)^2 + 2$ 3 marks</p> <ul style="list-style-type: none"> •¹ establishes coordinates of B •² part of equation correct •³ equation complete 	<ul style="list-style-type: none"> •¹ B(-3, 2) •² $y = (x + 3)^2 \dots\dots$ •³ $\dots\dots + 2$
13	<p>ans : 84.2 cm^3 4 marks</p> <ul style="list-style-type: none"> •¹ evaluates volume of cuboid •² knows to calculate volume of cone •³ evaluates volume •⁴ evaluates remaining volume 	<ul style="list-style-type: none"> •¹ $V_{\text{cuboid}} = 4 \times 4 \times 6 = 96$ •² $V = \frac{1}{3} \times \pi \times 1.5^2 \times 5$ •³ 11.8 •⁴ $96 - 11.8 = 84.2$
		Total 50 marks