Question	Answer	Marks	Guidance
9	$12\left(x^{\frac{2}{3}}\right)^2 - 11\left(x^{\frac{2}{3}}\right) - 5 = 0$	**B1**	For recognition of a 3-term quadratic equation in terms of $x^{\frac{2}{3}}$ or a suitable substitution
	$\left(3x^{\frac{2}{3}} + 1\right)\left(4x^{\frac{2}{3}} - 5\right) = 0$ $x^{\frac{2}{3}} = -\frac{1}{3},\ x^{\frac{2}{3}} = \frac{5}{4}$	**2**	**M1** for attempt to solve a 3-term quadratic equation in the form $12u^2 \pm 11u \pm 5 = 0$ to obtain at least one solution in the form $x^{\frac{2}{3}} = ...$ or 'u' = … **A1** for at least one correct solution.
	$x = 1.4$ only	**A1**	
10(a)	$27 = 12\theta$ $\theta = \frac{9}{4}$ oe	**B1**	$\angle AOB = \theta$
	Either $\tan(\pi - \theta) = \frac{CB}{12}$ soi Or $\frac{CB}{\sin(\pi - \theta)} = \frac{12}{\sin\left(\theta - \frac{\pi}{2}\right)}$	**M1**	Allow with *their* θ.
	Perimeter = $24 + 27 + 2(14.86..)$	**M1**	Allow with *their CB*.
	Perimeter = awrt 80.7	**A1**	From correct working only
10(b)	$\left(\frac{1}{2} \times 12^2 \times \textit{ their } \theta\right) + (12 \times \textit{ their } CB)$ 340 oe or 341 oe	**3**	**M1** for each area **A1** for awrt 340 or 341
11(a)	$\overrightarrow{AX} = \frac{\mathbf{b}}{2} - \mathbf{a}$	**B1**	Allow unsimplified
	$\overrightarrow{OZ} = \mathbf{a} + \lambda\left(\frac{\mathbf{b}}{2} - \mathbf{a}\right)$	**2**	**M1** for $\overrightarrow{OZ} = \mathbf{a} + \lambda \times their\left(\frac{\mathbf{b}}{2} - \mathbf{a}\right)$ Allow unsimplified Mark final answer
11(b)	$\overrightarrow{OY} = \frac{1}{2}(\mathbf{a} + \mathbf{b})$ oe	**B1**	Allow unsimplified
	$\overrightarrow{OZ} = \frac{\mu}{2}(\mathbf{a} + \mathbf{b})$	**B1**	**FT** on *their* $\overrightarrow{OY}$, allow unsimplified Mark final answer