1	Use of $b^2 - 4ac$
	Obtain $k^2 - 20k + 64$
	Attempt solution of quadratic equation or inequality
	Obtain $k < 4,\ k > 16$ or clear equivalent

5(a)	Use $\tan^4\theta = \dfrac{\sin^4\theta}{\cos^4\theta}$ or $\tan^4\theta - 1 = \left(\dfrac{\sin^2\theta}{\cos^2\theta}+1\right)+\left(\dfrac{\sin^2\theta}{\cos^2\theta}-1\right)$
	Attempt to express $\tan^4\theta - 1$ as a single fraction in terms of $\cos\theta$ only
	Confirm result $\dfrac{1-2\cos^2\theta}{\cos^4\theta}$
	Alternative Method for Question 5(a)
	$\dfrac{1-2\cos^2\theta}{\cos^4\theta} + \dfrac{\cos^4\theta}{\cos^4\theta} - 1$
	$\dfrac{\left(1-\cos^2\theta\right)^2}{\cos^4\theta} - 1$
	Confirm result $\tan^4\theta - 1$
	Alternative Method 2 for Question 5(a)
	$\tan^4\theta = \sec^4\theta - 2\sec^2\theta + 1$
	$\tan^4\theta - 1 = \dfrac{1}{\cos^4\theta} - \dfrac{2}{\cos^2\theta}$
	Confirm result $\dfrac{1-2\cos^2\theta}{\cos^4\theta}$

5(b)	Use identity to form equation using $\cos\theta$ only
	Obtain $9\cos^2\theta = 1$ or similarly simplified equivalent
	Solve equation of form $\cos^2\theta = k$ to obtain at least one solution
	Obtain 70.5 and 109.5

6(a)	State $\mathrm{f}(x)$ $y \geqslant -3$ or clear equivalent
6(b)	Attempt to arrange to $x = ...$ in terms of y or equivalent
	Obtain $-3 + \sqrt{x+12}$
6(c)	Attempt expression for $\mathrm{gf}(x)$
	Obtain $2(x+3)^2 - 29 = 69$
	Attempt solution of quadratic equation to find at least one value of x
	Obtain $x = 4$ only
	Alternative Method for Question 6(c)
	Attempt solution of $\mathrm{g}(x) = 69$ or evaluation of $\mathrm{g}^{-1}(69)$
	Obtain 37
	Attempt solution of $\mathrm{f}(x) = \textit{their}\ 37$ or evaluation of $\mathrm{f}^{-1}(\textit{their}\ 37)$
	Obtain $x = 4$ only

7(a)	Obtain correct $\frac{1}{2}r^2 \times \frac{2}{3}\pi - \frac{1}{2}r^2 \sin\frac{2}{3}\pi$
	$0.614r^2$
7(b)(i)	Obtain $\left[\frac{\mathrm{d}A}{\mathrm{d}r}\right] = 1.228\mathrm{r}$
	Use $\frac{\mathrm{d}A}{\mathrm{d}t} = \frac{\mathrm{d}A}{\mathrm{d}r} \times \frac{\mathrm{d}r}{\mathrm{d}t}$, or equivalent, with $r = 20$
	Obtain 9.8
7(b)(ii)	State or imply $\frac{2}{3}\pi r$ for length of arc AB
	Differentiate and apply correct use of chain rule
	Obtain 0.84

10(a)	Attempt to substitute for x or y to produce quadratic equation in one variable
	Obtain $5x^2 - 40x + 75 = 0$ or $5y^2 - 20 = 0$
	Find two values of one variable
	Obtain coordinates $(3, 2)$ and $(5, -2)$
10(b)	Obtain centre $(0, -2)$ [and radius 5]
	Attempt area of ABC using mid-point of AB or $\frac{1}{2} \times \text{base} \times \text{height}$
	Obtain $\frac{1}{2}\sqrt{20} \times \sqrt{20}$ or $\frac{1}{2} \times 5 \times 4$ (or equivalent) and hence 10