Cosine Rule Mark Scheme		
1	$x^2 = 6^2 + 5^2 - 2(6)(5)\cos 30$	[1] Correct use of cosine rule
	$x^2 = 36 + 25 - 60(0.8660) = 9.0385\ldots$	[1] Calculation
	$x = 3.0064\ldots = 3.0$ cm	[1] Answer to 1 dp
2	$\cos x = \dfrac{10^2 + 7^2 - 12^2}{2(10)(7)}$	[1] Correct use of cosine rule
	$x = 87.953$	[1] Calculation
	$x = 88°$	[1] Final answer
3(a)	$x^2 = 6.5^2 + 20^2 - 2(6.5)(20)\cos 49.5$	[1] Correct use of cosine rule
	$x = 16.535$	[1] Answer for x (MN)
	$ON = 16.535 - 12 = 4.5$ cm	[1] Final answer
3(b)	$\cos x = \dfrac{16.5^2 + 6.5^2 - 20^2}{2(16.5)(6.5)}$	[1] Correct use of cosine rule
	$\cos x = -0.399$	[1] Answer
	$x = 113.5°$	[1] Full marks final answer
4(a)	20 km in 60 minutes, So 30 km in 90 minutes	[1] Distance after 90 mins
4(b)	$AB^2 = 30^2 + 18^2 - 2(30)(18)\cos 78$	[1] Correct use of cosine rule
	$AB^2 = 900 + 324 - 1080(0.2079\ldots) = 999.4554\ldots$	[1] Correct evaluation
	$AB = 31.6141\ldots = 32$ km	[1] Final answer
5(a)	$q^2 = (4+p)^2 + (5-p)^2 - 2(4+p)(5-p)\cos 120^o$	[1] Correct use of cosine rule
	$q^2 = 2p^2 - 2p + 41 + (4+p)(5-p) = p^2 - p + 61$	[1] Simplifying
5(b)	$q^2 = (0.5)^2 - 0.5 + 61 = 60.75$	[1] form this equation
	$q = \sqrt{60.75} = 7.794$	[1] Solve for q
6(a)	$y^2 = (x+1)^2 + (x-1)^2 - 2(x+1)(x-1)\cos 60$	[1] Correct use of cosine rule
	$y^2 = 2x^2 + 2 - (x^2 - 1)$	[1] Simplifying
	$x^2 + 3$	[1] Final answer
6(b)	x is even, so x^2 is even	[1] Reasoning
	Hence $x^2 + 3$ is odd $\therefore y^2$ is odd	[1] Conclusion