Answers and mark guide

Q	Answer	Working	Marks
1	**9.39 cm**	$x^2 = 14^2 + 11^2 - 2\times14\times11\times\cos 42°$	4
2	**12.1 cm**	$x^2 = 12^2 + 8^2 - 2\times12\times8\times\cos 71°$	4
3	**8.89 cm**	$x^2 = 7^2 + 10^2 - 2\times7\times10\times\cos 60°$	4
4	**9.25 cm**	$x^2 = 11^2 + 10^2 - 2\times11\times10\times\cos 52°$	4
5	**13.8 cm**	$x^2 = 10^2 + 14^2 - 2\times10\times14\times\cos 68°$	4
6	**48.2°**	$\cos x = (7^2 + 12^2 - 9^2) \div (2\times7\times12)$	5
7	**64.6°**	$\cos x = (14^2 + 12^2 - 14^2) \div (2\times14\times12)$	5
8	**43.8°**	$\cos x = (9^2 + 13^2 - 9^2) \div (2\times9\times13)$	5
9	**88.0°**	$\cos x = (10^2 + 7^2 - 12^2) \div (2\times10\times7)$	5
10	**57.4°**	$\cos x = (6^2 + 13^2 - 11^2) \div (2\times6\times13)$	5
11	**18.6 cm**	Cosine rule with the angle between the two known sides	5
12	**78.1°**	The largest angle is opposite the longest side	5
13	**20.8 km**	The angle between the paths is 70°	6
14	**6.27 cm**	Cosine rule	4
15	**$a^2 = b^2 + c^2 - 2bc\cos A$**	Standard result.	3
16	**54.8°**	Cosine rule on the triangle formed by the two sides and the diagonal	6
17	**perimeter 35 cm; cos = 0.750**	$(10^2 + 15^2 - 10^2) \div (2\times10\times15)$	5
18	**cos of largest angle = (25 + 49 − 100)/70 = −0.371, negative so obtuse**	Largest angle opposite 10 cm	5
19	**third side 10.0 cm; area 24.6 cm²**	Cosine rule, then ½ab sin C	6
20	**Use the cosine rule with SAS or SSS; use the sine rule when you know a side and its opposite angle plus one more angle or side**	Standard decision rule.	4

My score: _____ / **94** Questions 1–15 = 68 marks (Foundation focus)