Answers and mark guide

Q	Answer	Working	Marks
1	**080°**	260° − 180°	2
2	**090°**	Measured clockwise from north.	2
3	**225°**	180° + 45°	2
4	**055°**	235° − 180°	2
5	**315°**	270° + 45°	2
6	**4.60 km**	North = 6 × cos 40°	4
7	**29.1 km**	East = 31 × sin 70°	4
8	**15.0 km**	North = 30 × cos 60°	4
9	**22.6 km**	East = 24 × sin 70°	4
10	**13.0 km**	North = 26 × cos 60°	4
11	**10.0 km**	$\sqrt{(6^2 + 8^2)}$	4
12	**143°**	Angle south of east = $\tan^{-1}(12/9) = 53.1°$; bearing = 90° + that	5
13	**053°**	$\tan^{-1}(12/9) = 53.1°$	5
14	**293°**	360° − $\tan^{-1}(12/5)$	5
15	**332°**	Angle at C between north and CA = $\tan^{-1}(8/15) = 28.1°$; A is to the north-west	5
16	**50 km**	The two legs are perpendicular (130° − 40° = 90°): $\sqrt{(30^2 + 40^2)}$	5
17	**093°**	Bearing = 40° + $\tan^{-1}(40/30)$ = 40° + 53.1°	6
18	**BAC = 70°; bearing 195°**	Triangle ABC is isosceles with base angles 55°. Bearing of A from B = 250°; bearing of C from B = 250° − 55° = 195°	5
19	**12.0 km**	Angle HPQ = 240° − 180° = 60°. Cosine rule: $HQ^2 = 12^2 + 12^2 − 2×12×12×\cos 60° = 144$, so HQ = 12	6
20	**305°**	125° + 180°	3

My score: _____ / 79 Questions 1–15 = 54 marks (Foundation focus)