Answers and mark guide

Q	Answer	Working	Marks
1	**1 at x = 90°**	Read the highest point.	3
2	**(0, 1)**	cos 0° = 1	2
3	**0°, 180°, 360°**	Where the curve crosses the x-axis.	3
4	**360°**	The graph repeats every 360°.	2
5	**x = 90° and x = 270°**	tan is undefined at these angles.	3
6	**(0, 1)**	$2^0 = 1$	3
7	**64**	4^3	2
8	**Increasing; the asymptote is y = 0**	As x gets very negative, y → 0	3
9	**1/4**	$2^{-2} = 1/4$	3
10	**No: n^x is always positive**	An exponential function of a positive base is positive.	2
11	**2**	sin 30° = 0.5	3
12	**4**	The maximum value.	2
13	**max 4, min −4**	Multiply cos x by a.	3
14	**30° and 150°**	Use the symmetry of the sine curve.	4
15	**60° and 300°**	Symmetry about 180°.	4
16	**180°**	Period = 360° ÷ 2	4
17	**y = sin(x + 90°) = cos x**	Translation of 90° left gives cos x.	5
18	**16000**	500 × 32	4
19	**4**	Equal powers	3
20	**The curve has a vertical asymptote at 90° so there is no value**	tan x = sin x / cos x and cos 90° = 0	3

My score: _____ / 61 Questions 1–15 = 42 marks (Foundation focus)