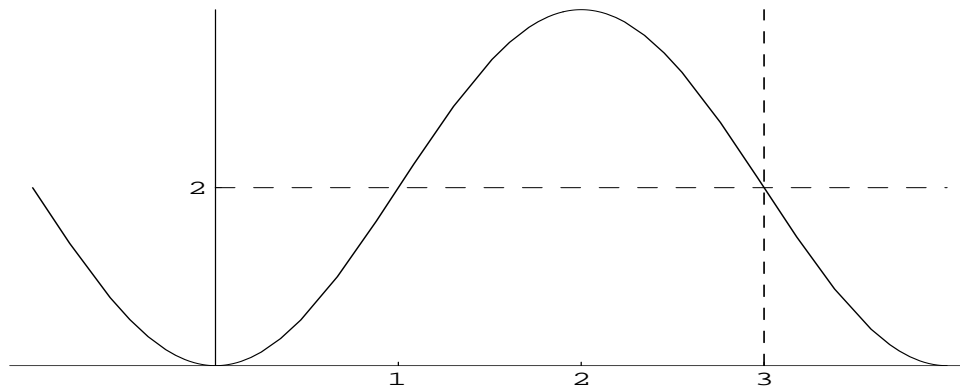


You have 20 minutes to complete this quiz which is worth 20 points. Calculators are permitted, but no other aids are allowed. Show all work neatly and in order, and clearly indicate your final answers. Answers must be justified whenever possible in order to earn full credit. When you do use your calculator, sketch all relevant graphs and write down all relevant mathematics.

1. (5 points) A CB antenna is located on the top of a garage that is 16 feet tall. From a point on level ground that is 100 feet from a point directly below the antenna, the antenna subtends an angle of 12° . Approximate the length of the antenna.

2. (6 points) Find a possible formula for the trigonometric function graphed below.



3. (*4 points*) For each function given below, compute $\frac{dy}{dx}$.

(a) $y = \sin(e^x)$

(b) $y = \cos(\sin(x))$

4. (*5 points*) Find the fiftieth derivative of $y = \sin(x)$.