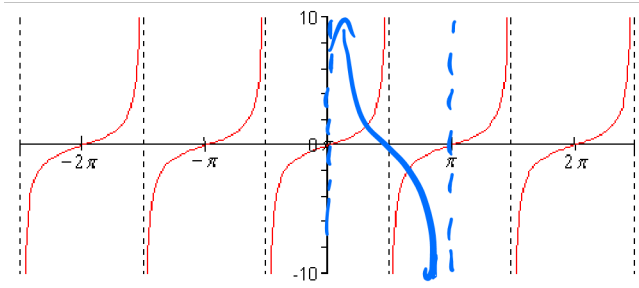
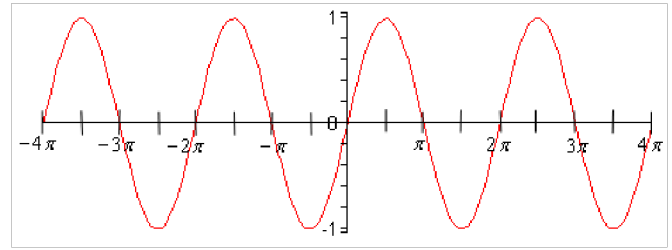


Free Response Practice #49
Calculator NOT Permitted

 $f(\theta)$  $g(\theta)$

Given above are the graphs of two trigonometric functions. Use the graphs to answer the following questions.

- a. Identify which trigonometric function is represented by the graph of $f(\theta)$. Explain how you know.

+1 $f(\theta) = \tan \theta$ because $\tan \theta$ touches the midline at beginning & end of period and has a VA at middle of period. $\tan \theta$'s curves are similar to $y = x^3$ +1

- b. Identify which trigonometric function is represented by the graph of $g(\theta)$. Explain how you know.

+1 $g(\theta) = \sin \theta$ because $\sin \theta$ touches the midline beginning, middle, & end of period. +1

- c. Identify the domain and range of the graph of the function defined by $y = -3g(\theta)$. Justify your reasoning.

+1 $D = (-\infty, \infty)$

+1 $R = [-3, 3]$ because the amplitude is 3

- d. Is the equation $\cot \theta = -f\left(\theta - \frac{\pi}{2}\right)$ true? Explain your reasoning.

+1 $\cot \theta = -f\left(\theta - \frac{\pi}{2}\right)$ is true

+1 The negative coefficient causes a vertical reflection

+1 The $\frac{\pi}{2}$ translate graph of $f(\theta)$ right $\frac{\pi}{2}$.