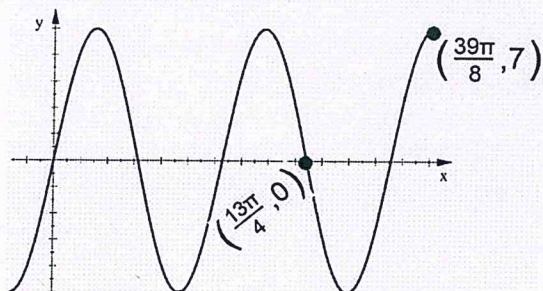


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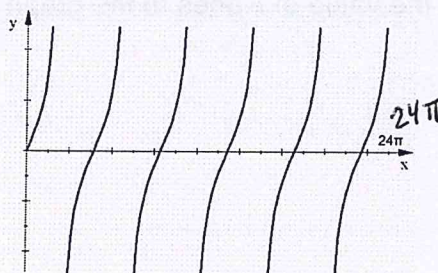
1. Graph one period of this function. Give the coordinates of all max's, min's, and points on the midline.

$$y = -4\sin\left(\frac{5}{3}\left(x - \frac{7\pi}{8}\right)\right) - 3$$

2. Write a Sin equation for this graph.



3. Write the equation of this graph.



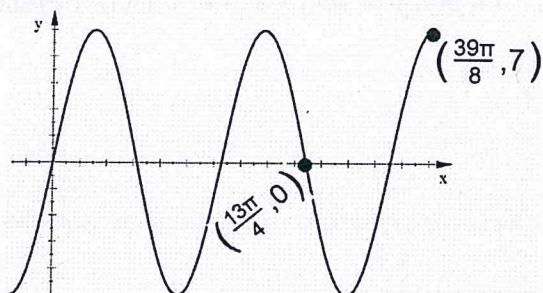
4. Given the function $y = \tan x$ has a period of $\frac{34\pi}{25}$ find 5 VA and 5 x-int.

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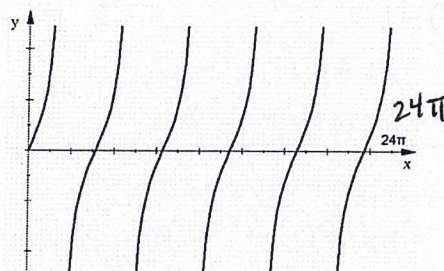
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$$(1) y = -4 \sin\left(\frac{5}{3}\left(x - \frac{7\pi}{8}\right)\right) - 3$$

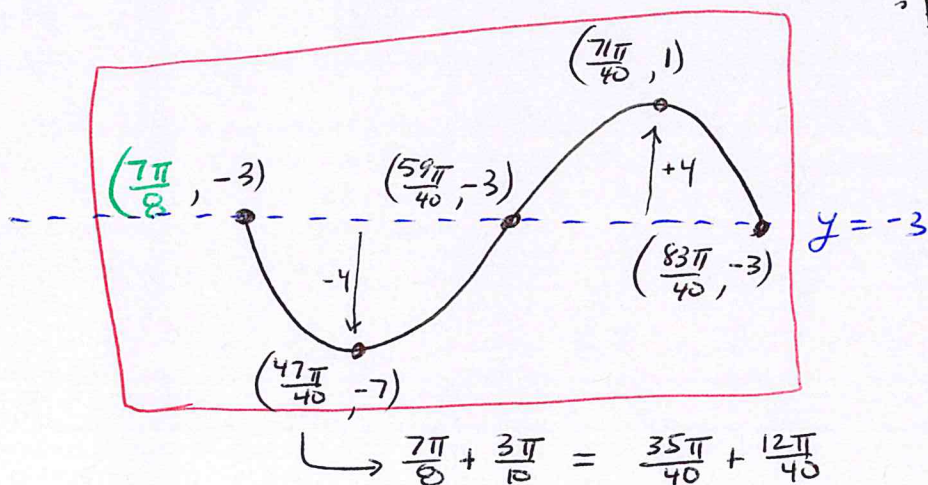
• Amplitude = 4 • upside down

• midline: $y = -3$

• phase shift: $\frac{7\pi}{8}$ right

$$\text{period} = \frac{2\pi}{\frac{5}{3}} = 2\pi \cdot \frac{3}{5} = \frac{6\pi}{5}$$

$$\frac{1}{4} \text{ period} = \frac{6\pi}{5} \cdot \frac{1}{4} = \frac{3\pi}{10}$$



(2) midline: $y = 0$ Amplitude = 7 START AT $(0,0)$: NO phase shift

$$\text{period} = \frac{\frac{39\pi}{8} - 0}{2\frac{1}{4}} = \frac{\frac{39\pi}{8}}{\frac{1}{4}} = \frac{39\pi}{8} \cdot \frac{4}{1} = \frac{39\pi}{18} \rightarrow b = \frac{2\pi}{\frac{39\pi}{18}}$$

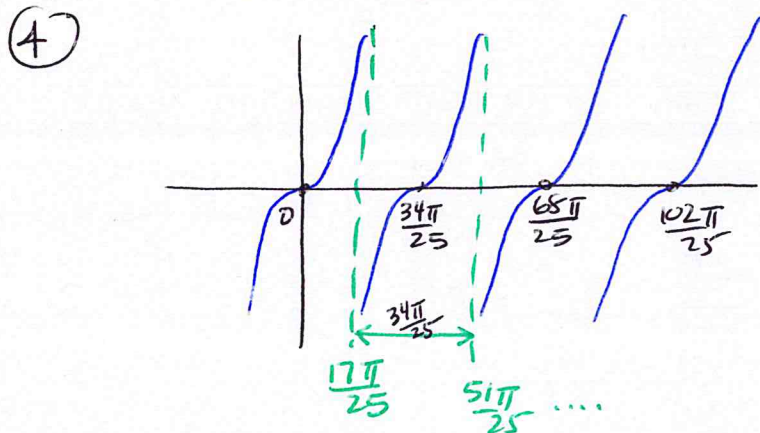
$$y = 7 \sin \frac{12x}{13}$$

$$= 2\pi \cdot \frac{18}{39\pi}$$

$$b = \frac{12}{13}$$

(3) period = $\frac{24\pi}{5\frac{1}{2}} = \frac{24\pi}{\frac{11}{2}} = 24\pi \cdot \frac{2}{11} = \frac{48\pi}{11} \rightarrow b = \frac{\pi}{\frac{48\pi}{11}} = \frac{11}{48}$

$$y = \tan \frac{11x}{48}$$



$$\text{period} = \frac{34\pi}{25}$$

$$x\text{-int} = 0, \pm \frac{34\pi}{25}, \pm \frac{68\pi}{25}, \dots$$

$$VA: \pm \frac{17\pi}{25}, \pm \frac{51\pi}{25}, \pm \frac{85\pi}{25}, \dots$$