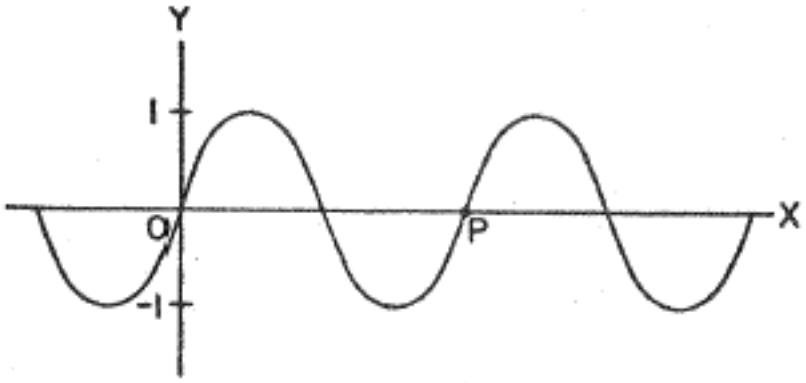
PreCalc '14-15 Name_____
Chapter 9 Test--MC
Calculator NOT Allowed Score _____

1. On the graph of $y=-\cos x$, as x increases on $x\in\left[-\frac{\pi}{4},\frac{\pi}{4}\right]$, the function y

(a) decreases (b) is constant (c) increases

(d) decreases, then increases (e) increases, then decreases

2. This is the graph of $y=\sin(2x)$.



What is the *x*-value of P?

A. $\frac{\pi}{2}$ B. π C. 2π D. 3π E. 6π

3. Given $g(x)=1-4\cos\left[\frac{\pi}{2}(x-3)\right]$, which of the following statements is true?

I. The vertical shift of $g(x)$ is -4.
II. The period of $g(x)$ is 4.
III. The phase shift is -3.

(a) I only (b) II only (c) III only

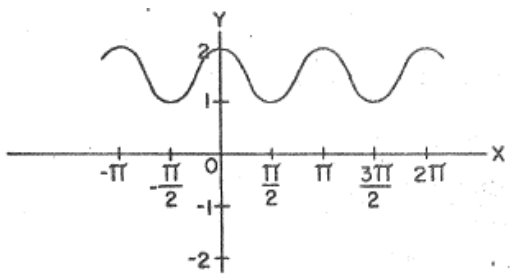
(d) I and II only (e) I, II and III

4. What is the smallest positive value where $y=3-2\sin\left[\frac{\pi}{8}(x-3)\right]$ has a point at the minimum?

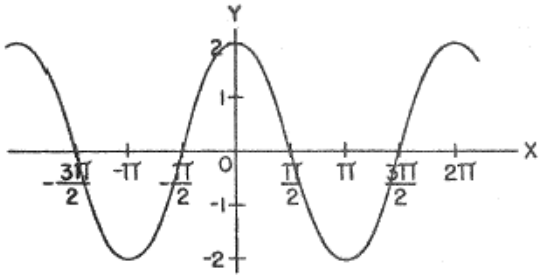
(a) 1 (b) 3 (c) 5 (d) 5 (e) 7

5. Which of the following is the graph of $y=\cos x+1$?

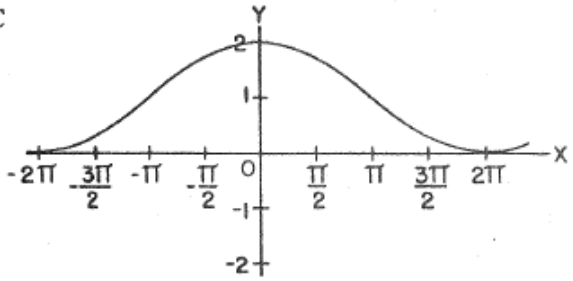
A



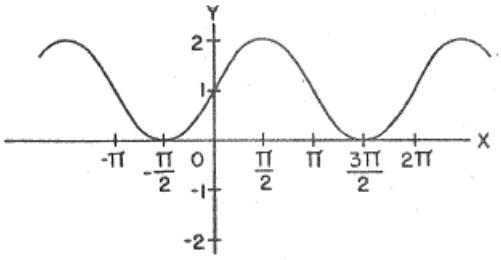
B



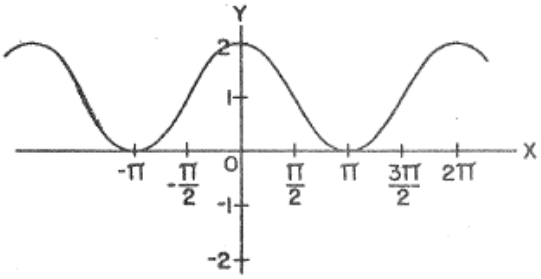
C



D



E



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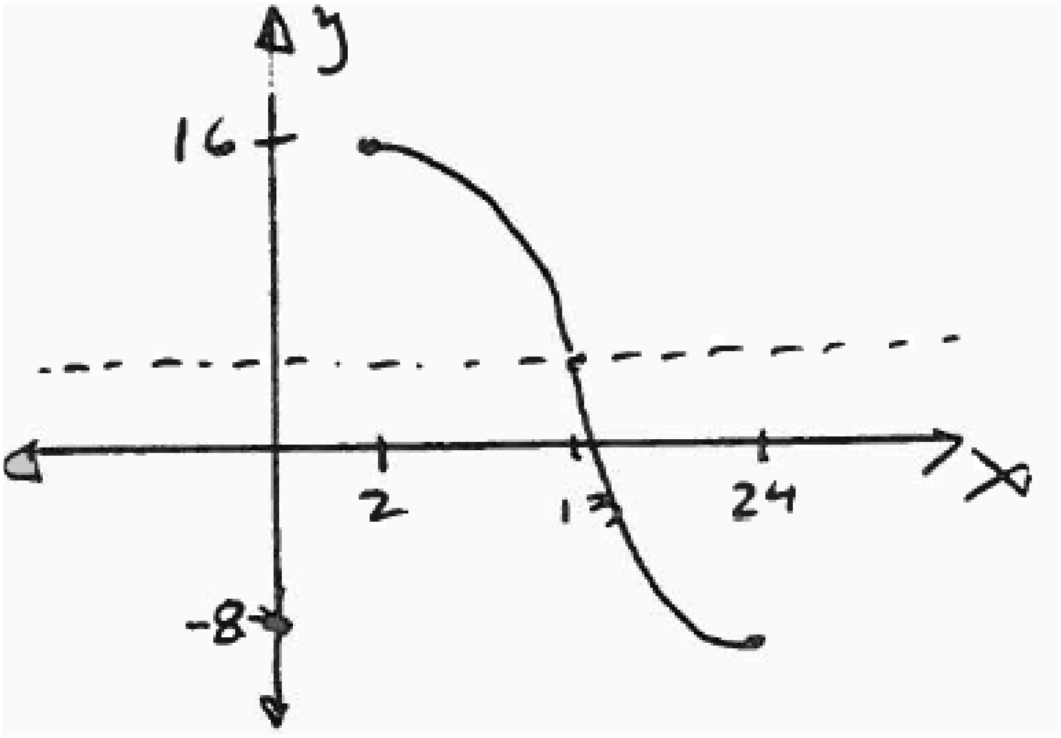
Round all answers to 3 decimals

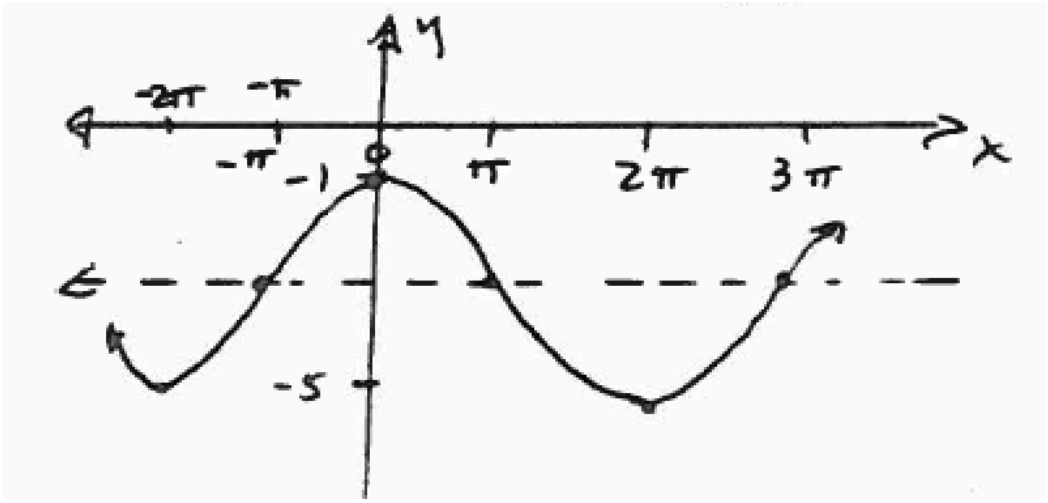
7. Sketch one cycle of $H(x) = -3 + 4\sin\left[\frac{\pi}{5}(x+2)\right]$

8. Sketch one cycle of $H(x) = 2 - 4\cos\left[\frac{1}{6}(x-\pi)\right]$

9. Find a cosine equation for this graph:



10. Find a sine equation for this graph:



11. If $H(x) = -3 + 3\cos\left[\frac{\pi}{7}(x+1)\right]$, find the first three negative values of x where $H(x) = -1.3$.

12. A baseball player who bats .300 over a season has streaks and slumps and rarely bats exactly .300 at a particular time. Let us assume that a player's batting average varies sinusoidally with time and ranges from a high of .425 to a low of .175. Let us further assume that each cycle lasts 54 games and he reaches his first high 10 games into the season.

a. Sketch two cycles of the situation.
b. Find an equation that represents B (batting average) in terms of time *t*.
c. According to this model, what would be his batting average in the last game of the season (game 162)?
d. When are the first three times that his batting average is .375?