

Ch.5 Extra Practice: Sine & Cosine

NAME:

PER:

Refer to the unit circle to evaluate:

A. $\sin \frac{5\pi}{6}$

B. $\sin \frac{4\pi}{3}$

C. $\cos \frac{9\pi}{4}$

D. $\cos \left(-\frac{3\pi}{2} \right)$

E. $\cos 4\pi$

F. $\sin 8\pi$

G. $\sin \frac{3\pi}{2}$

Write an equation in factored form for each sine function that has the given values. *Justify your answers by showing work when finding the k value! (Hint: use given value for period, set equal to $\frac{2\pi}{k}$, then cross multiply to find k.)*

H. amplitude = 2, period = 3π , horizontal shift = $-\pi$

I. amplitude = 2, period = 4π , horizontal shift = π , vertical shift = -1

J. amplitude = $\frac{1}{2}$, period = $\frac{\pi}{4}$, horizontal shift = 0, vertical shift = 3

K. amplitude = $\frac{1}{2}$, period = $\frac{\pi}{2}$, horizontal shift = 2π , vertical shift = -3

Check Answers A-K and #5-12:

$-\frac{\sqrt{3}}{2}$ $\frac{\sqrt{2}}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{\pi}{2}$ $\frac{3\pi}{2}$ -1 0 0 1 1 1 1 1 2 2 2 3 3

-2π -2π $-\pi$ π π 2π 2π 4π 4π 8π 8π

$y = \pm \frac{1}{2} \sin(8x) + 3$ $y = \pm 2 \sin \frac{1}{2}(x - \pi) - 1$ $y = \pm \frac{1}{2} \sin 4(x - 2\pi) - 3$ $y = \pm 2 \sin \frac{2}{3}(x + \pi)$

Graph each of the following functions on the back of this sheet by plotting the key points for each period. Be sure to use only the increments as given.

1. $y = \sin x, -2\pi \leq x \leq 2\pi$

2. $y = \cos x, -2\pi \leq x \leq 2\pi$

3. $y = \sin x, -4\pi \leq x \leq -2\pi$

4. $y = \cos x, -\frac{9\pi}{2} \leq x \leq -\frac{5\pi}{2}$

State the **amplitude and period** for each function, then sketch a graph on the back of this sheet for the given increments.

5. $y = 2\cos x$

6. $y = -3\sin \frac{1}{2}x$

7. $y = \frac{1}{2} \cos \frac{x}{4}$

Write the equation in factored form (factor the k value), then state the **amplitude, period, and horizontal shift** for each function. Sketch a graph on the back of this sheet for the given increments.

8. $y = \sin(2x - \pi)$

9. $y = 2\cos(x + 2\pi)$

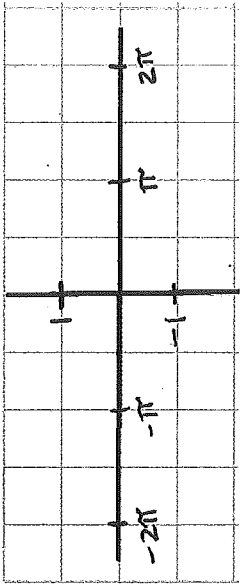
10. $y = \sin \left(\frac{x}{2} + \frac{\pi}{2} \right)$

Write the equation in factored form (factor the k value), then state the **amplitude, period, horizontal and vertical shift** for each function. Sketch a graph on the back of this sheet for the given increments.

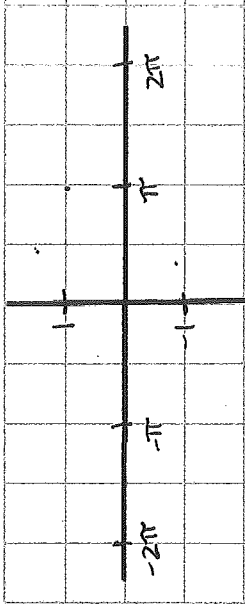
11. $y = -2\cos \left(\frac{1}{4}x + \frac{\pi}{2} \right) + 1$

12. $y = -\sin(2x - 3\pi) + 3$

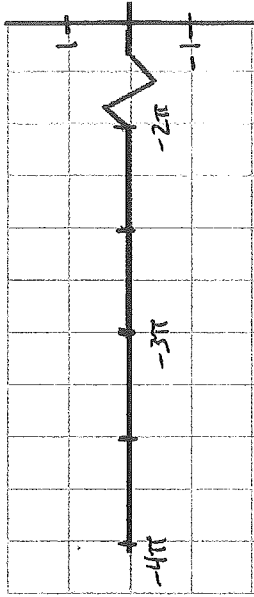
1) $y = \sin x$



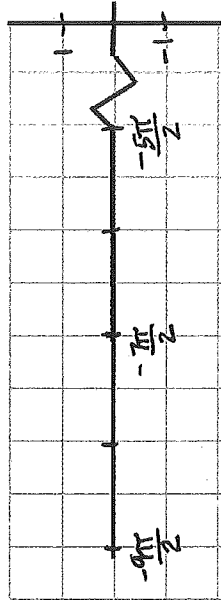
2) $y = \cos x$



3) $y = \sin x$ (only graph for $-4\pi \leq x \leq -2\pi$ as given)

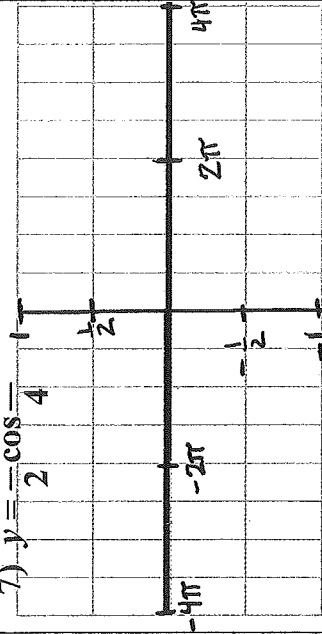


4) $y = \cos x$

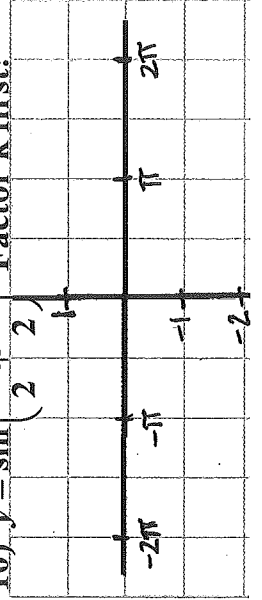


#4-12 → Sketch only for the given increments!!

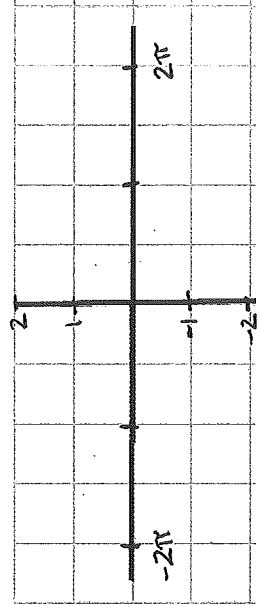
7) $y = \frac{1}{2} \cos \frac{x}{4}$



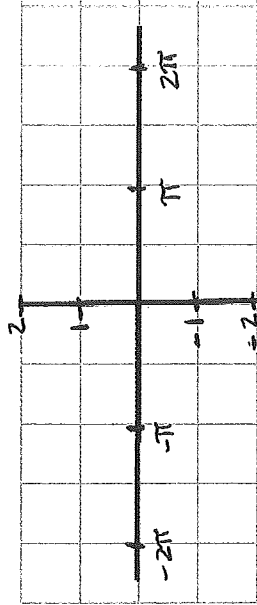
10) $y = \sin \left(\frac{x}{2} + \frac{\pi}{2} \right)$ Factor k first!



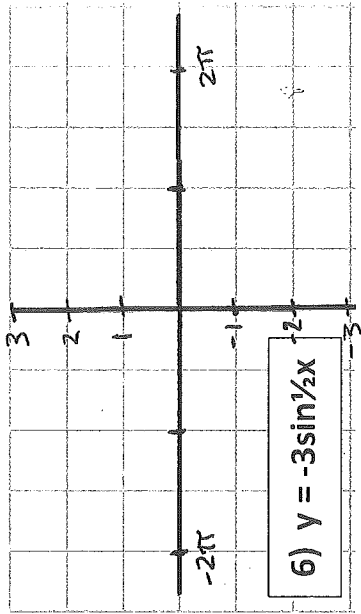
5) $y = 2 \cos x$



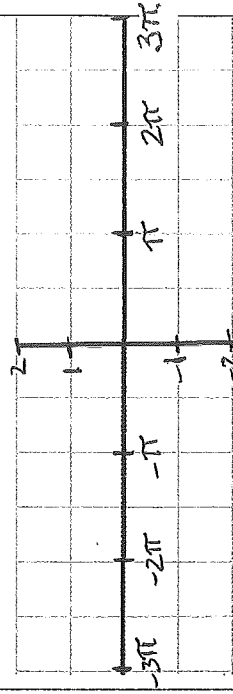
8) $y = \sin(2x - \pi)$ Hint: factor k first!



6) $y = -3 \sin \frac{1}{2} x$

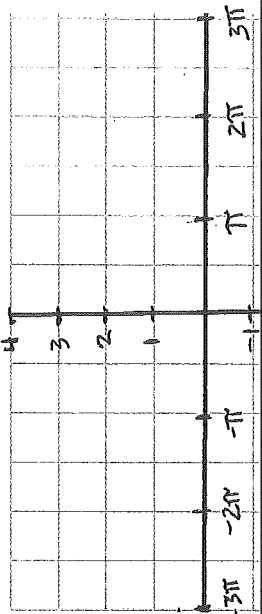


9) $y = 2 \cos(x + 2\pi)$



12) $y = -\sin(2x - 3\pi) + 3$

Be sure to write it in factored form first!!!



11) $y = -2 \cos \left(\frac{1}{4} x + \frac{\pi}{2} \right) + 1$

Be sure to write it in factored form first!!!

