CYCLE #5 Triggy Stuff

Show all work. No Calculator

I. Short Answer

For problems 1 – 5, solve. Give exact answers in radians for $0 \le x < 2\pi$.

1. $2\sin^2 x - 3\sin x - 2 = 0$

2. $2\sin^2 x - \cos x - 1 = 0$

3. $\sin(2x) = \sin x$

4. $\cos(2x) = \cos x$

5. $2\cos(3x) + \sqrt{3} = 0$

6. Evaluate.

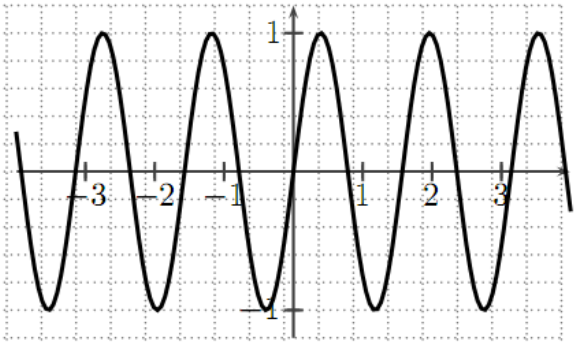
(a) $\cos\left(Sin^{-1}\left(-\frac{\sqrt{3}}{2} \right) \right)$

(b) $\tan\left(Arc\sec(3x) \right)$

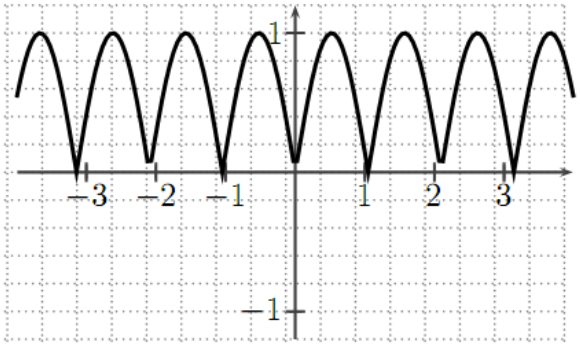
II. Multiple Choice

_____ 7. Which one of the following is the graph of the function $f(x) = \sin|4x|$?

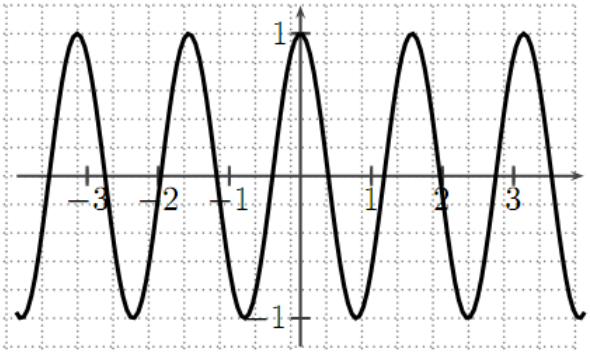
(A)



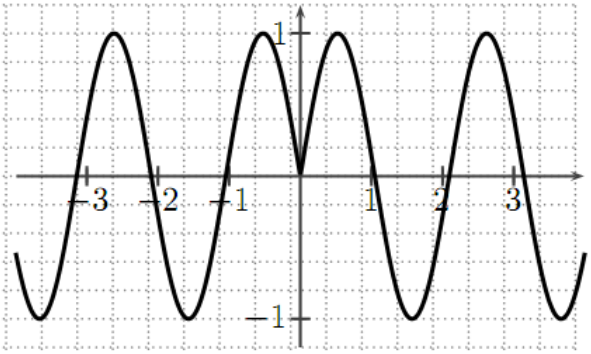
(B)



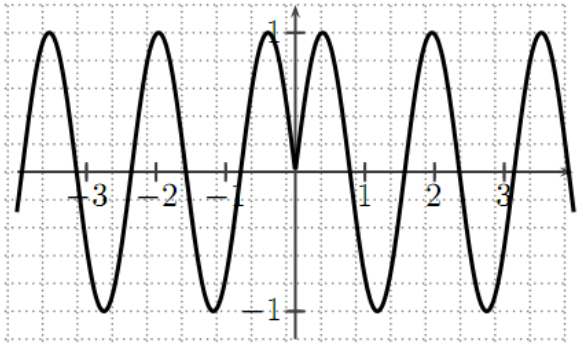
(C)



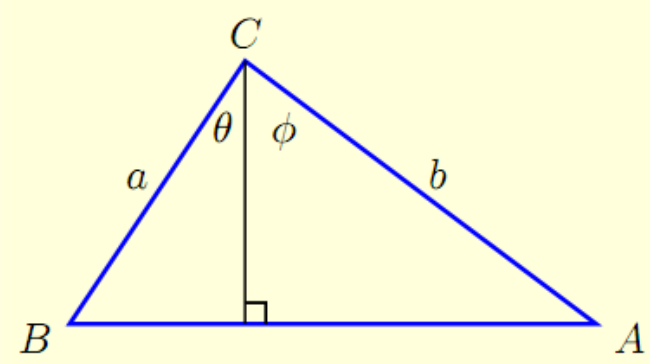
(D)



(E)



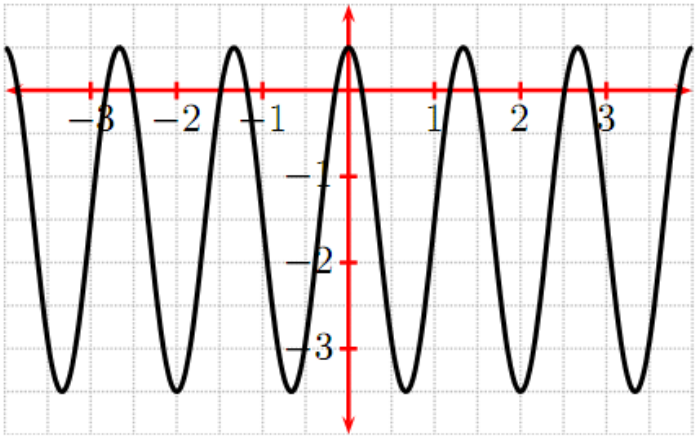
_____ 8. Use the figure below to express $\tan\phi$ in terms of a, b, and θ.



(A) $\frac{1}{b}\sqrt{a^2-b^2\cos^2\theta}$ (B) $\frac{1}{a\cos\theta}\sqrt{a^2-b^2\cos^2\theta}$ (C) $\frac{1}{b\cos\theta}\sqrt{a^2-b^2\cos^2\theta}$

(D) $\frac{1}{a}\sqrt{a^2-b^2\cos^2\theta}$ (E) $\frac{1}{a\cos\theta}\sqrt{b^2-a^2\cos^2\theta}$ (F) $\frac{1}{b}\sqrt{b^2-a^2\cos^2\theta}$

_____ 9. The graph of $y=a+b\cos mx$, $m>0$ on $[-4,4]$. What is the value of b?



(A) 2 (B) $\frac{7}{4}$ (C) –2 (D) –4 (E) 4

_____ 10. If $f(x)=4\sin x+6\cos 2x$, then $f\left(\frac{\pi}{6}\right)$ equals what?.

(A) $6\sqrt{3}$ (B) $7\sqrt{3}$ (C) $5\sqrt{3}$ (D) 6 (E) 7 (F) 5

_____ 11. Which of the following is the range of $f(x)=2\cos(4x+\pi)-1$?

(A) $(-3,1)$ (B) $[-3,1]$ (C) $(-1,4)$ (D) $[-1,4]$ (E) $(-\infty,\infty)$

_____ 12. $4\cos\left(x+\frac{\pi}{3}\right)=$

(A) $2\sqrt{3}\cos x-2\sin x$ (B) $2\cos x-2\sqrt{3}\sin x$ (C) $2\cos x+2\sqrt{3}\sin x$

(D) $2\sqrt{3}\cos x+2\sin x$ (E) $4\cos x+2$