

Name _____ Date _____ Period _____

Worksheet P.7—Trigonometry

Show all work. No Calculator

I. Short AnswerFor problems 1 – 5, solve. Give exact answers in radians for $0 \leq x < 2\pi$.

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.

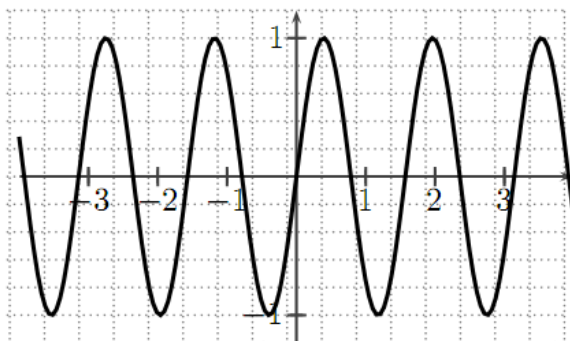
(a) $\cos\left(\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)\right)$

(b) $\tan(\operatorname{Arcsec}(3x))$

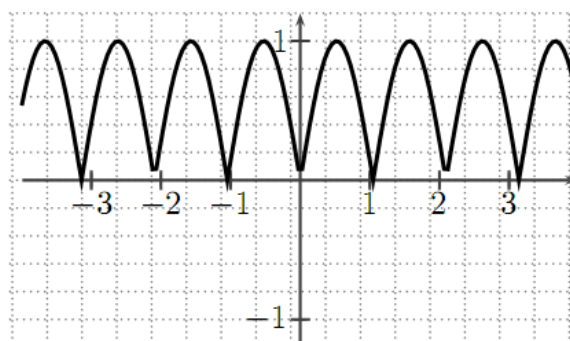
II. Multiple Choice

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

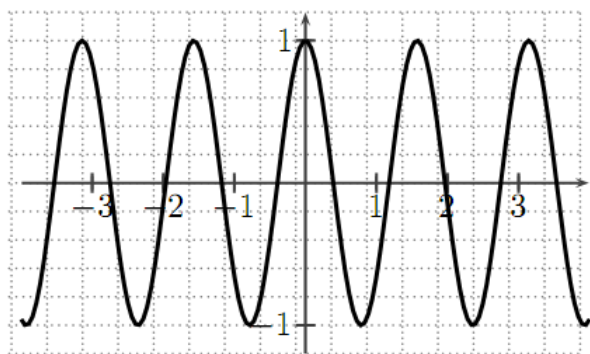
(A)



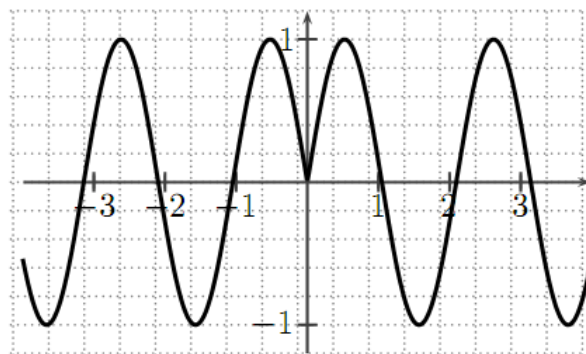
(B)



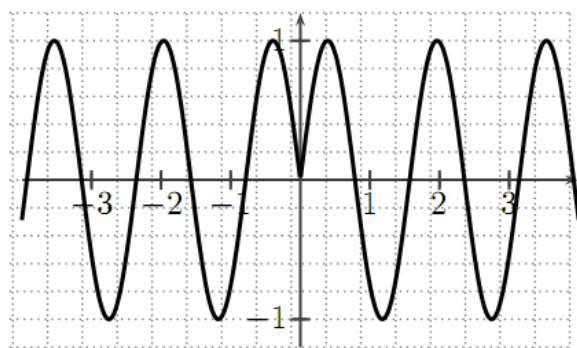
(C)



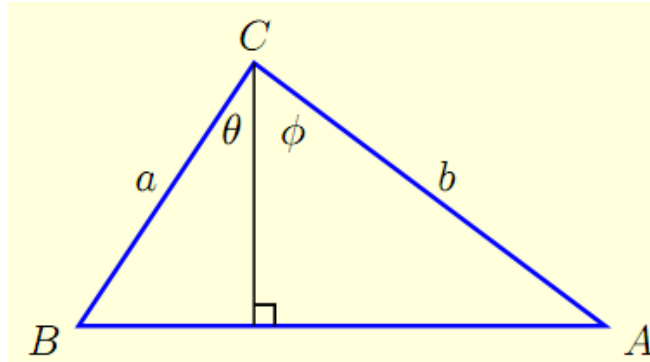
(D)



(E)

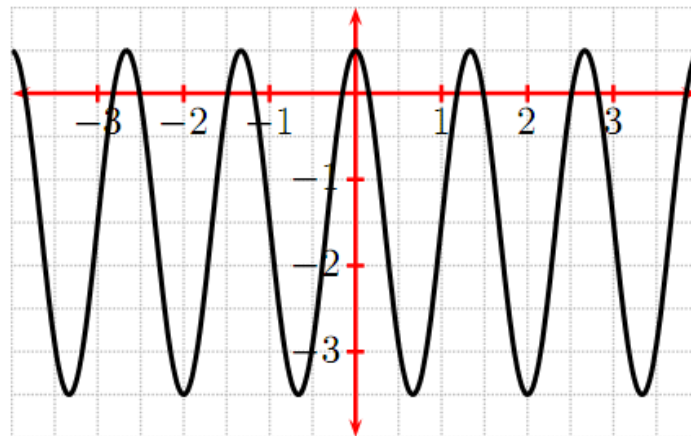


_____ 8. Use the figure below to express $\tan \phi$ in terms of a , b , and θ .



- (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) $4\cos x + 2$