

CHAPTER 4, FORM A
TRIGONOMETRY

NAME _____

DATE _____

1. Which one of the six trigonometric functions has a period of π and passes through the point $(0, 0)$?
2. Give all of the basic trigonometric functions that satisfy the condition: the range is $(-\infty, \infty)$.
3. Use the ranges to explain why the secant function can attain the value of 2 but the cosine function cannot.
4. True or false: $y = 3 \cot x$ and $y = \frac{1}{4 \tan x}$ have the same graph.
5. What is the minimum value of $y = 3 + \cos 2x$?
6. Which of the following is the equation of the cosine function with amplitude 4 and period π ?
 - a. $y = 2 \cos 2x$
 - b. $y = 4 \cos (x + 2)$
 - c. $y = 2 \cos 4x$
 - d. $y = 4 \cos 2x$

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

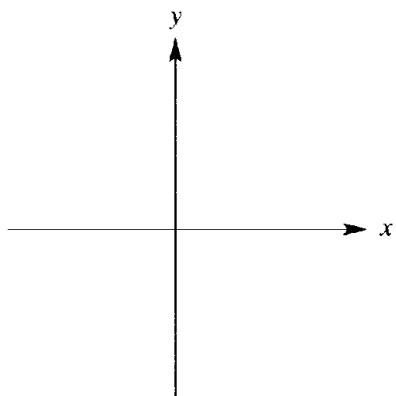
For each defined function, give the amplitude, period, vertical translation, and phase shift, as applicable.

7. $y = -3 \sin x$
8. $y = \cos 2x + 3$
9. $y = \sec \left(x + \frac{\pi}{2} \right)$
10. $y = 3 - \tan 2x$
11. $y = 3 \cos 2 \left(x - \frac{\pi}{4} \right)$
12. $y = 4 - \frac{3}{4} \sin (3x - \pi)$

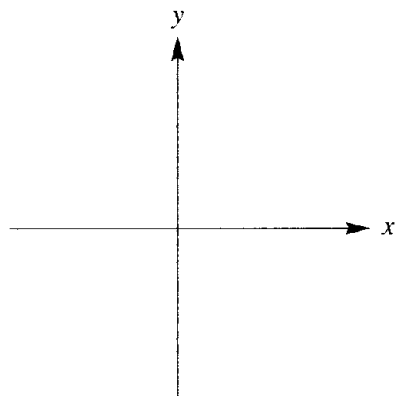
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

Graph each defined function over a one-period interval.

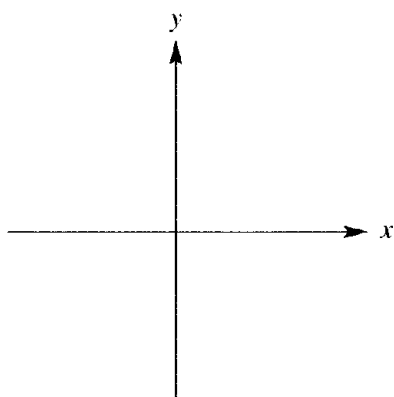
13. $y = 5 \sin x$



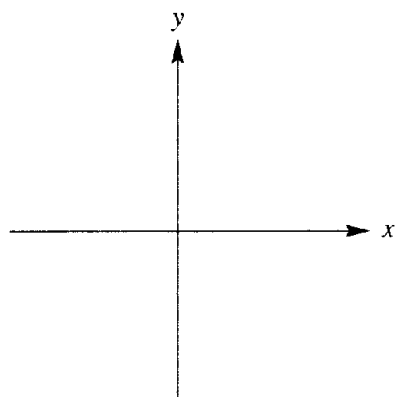
14. $y = 3 - 2 \cos x$



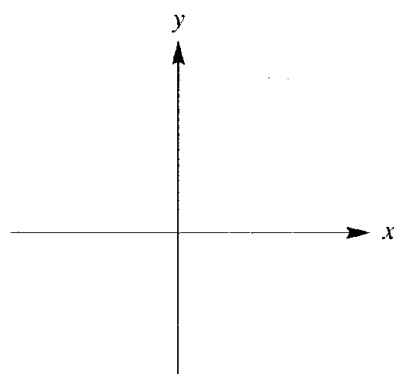
15. $y = \frac{1}{4} \sec x$



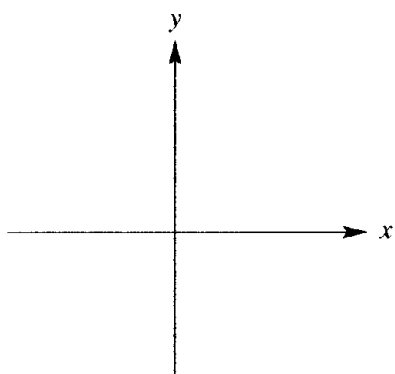
16. $y = 3 \tan x$



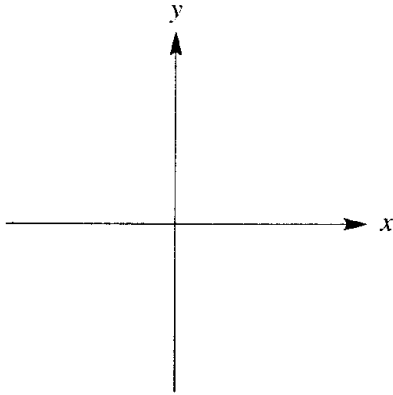
17. $y = -\sin\left(x + \frac{\pi}{2}\right)$



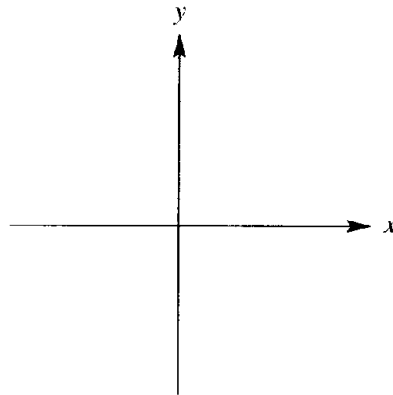
18. $y = \csc\left(2x + \frac{\pi}{2}\right)$



19. $y = \tan\left(\frac{x}{2} + \frac{\pi}{4}\right)$



20. $y = -2 + \frac{1}{2}\cos(2x - \pi)$



CHAPTER 5, FORM B
TRIGONOMETRY

NAME _____
DATE _____

1. Given $\cos x = -\frac{3}{4}$, with x in quadrant II,
find the remaining five trigonometric
functions of x .

1. _____

Given $\sin x = -\frac{1}{2}$, where $180^\circ < x < 270^\circ$. Find each of the following.

2. $\cot x$

2. _____

3. $\cos x$

3. _____

Let $\sin s = -\frac{2}{3}$, with s in quadrant III and let $\cos t = -\frac{1}{3}$, with t in quadrant

II. Find each of the following.

4. $\cos (s - t)$

4. _____

5. $\sin (s + t)$

5. _____

6. $\sin 2s$

6. _____

7. $\tan \frac{t}{2}$

7. _____

Suppose $x = \frac{5\pi}{12}$. Use the indicated identity to find the exact value of each
of the following.

8. $\sin x$, sum identity

8. _____

9. $\cos x$, half-angle identity (Not testing)

9. _____

Answer *true* or *false* for each of the following.

10. $\sin 47^\circ = 2 \sin 94^\circ \cos 94^\circ$

10. _____

11. $\cos (-19^\circ) = -\cos 19^\circ$

11. _____

12. $\cos 84^\circ = \cos 51^\circ \cos 33^\circ - \sin 51^\circ \sin 33^\circ$

12. _____

13. $\sin 38^\circ = 1 - 2 \sin^2 19^\circ$

13. _____

14. Explain how to derive a formula for
 $\sin (A - B + C)$.

14. _____

Use identities to express each of the following in terms of $\sin \theta$ and $\cos \theta$, and simplify.

15. $\sec \theta + \sin \theta$

15. _____

16. $\frac{\sec \theta \csc \theta}{\tan \theta \cot \theta}$

16. _____

Verify that the equation is an identity.

17. $\frac{\sec^2 \beta}{\tan \beta} = \frac{\cot^2 \beta - \tan^2 \beta}{\cot \beta - \tan \beta}$

17. _____

18. $1 - \cos x = \frac{2}{\csc^2 \frac{x}{2}}$

18. _____

19. $\sin 2\beta = 2 \sin^3 \beta \cos \beta + 2 \sin \beta \cos^3 \beta$

19. _____

20. $2 \tan \alpha \sin \alpha \sec \alpha = 2 \sec^2 \alpha - 2$

20. _____

Ch.4 was included in the Midterm 2 material.

**CHAPTER 7, FORM A
TRIGONOMETRY**

NAME _____
DATE _____

1. Given that $b = 30$ and $c = 42$ in a triangle ABC , which of the following is impossible.

- a. $a = 80$ b. $a = 63$
c. $a = 29$ d. $a = 15$

1. _____

Find the indicated part of each triangle ABC .

2. $B = 42.2^\circ$, $C = 108.7^\circ$, $b = 34.48$ m; find A .
3. $C = 39^\circ 30'$, $c = 61.3$ ft, $b = 80.5$ ft; find B .
4. Explain what the Law of Sines becomes when one of the angles is a right angle.

2. _____

3. _____

4. _____

Solve each triangle ABC having the given information.

5. $a = 28$ ft, $b = 34$ ft, $c = 42$ ft
6. $B = 125^\circ 20'$, $a = 81.5$ cm, $c = 59.8$ cm
7. Find the area of triangle ABC , given that $C = 25^\circ 35'$, $a = 18.5$ cm and $b = 24.6$ cm.

5. _____

6. _____

7. _____

Solve each problem.

8. The sides of a triangular lot measure 260 ft, 190 ft, and 310 ft. Find the area of the lot.
9. A plane travels at a bearing of 49.5° from point A for 79.4 mi. The plane then travels for 124.6 mi at a bearing of 149.3° . How far is the plane from point A ?

8. _____

9. _____

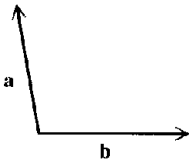
10. True or false: the resultant vector bisects the angle between the two component vectors.

10. _____

Only to here for mid-term #3

Sketch the indicated vectors.

11. $a + b$



12. $m + n + p$

