

Trigonometry Chapter 1 Review Worksheet

Name _____

pl

Match each of the following word(s) on the right with an appropriate explanation or definition on the left.

_____ 1. angle

_____ 2. right angle

_____ 3. acute angle

_____ 4. obtuse angle

_____ 5. Pythagorean Theorem

_____ 6. distance formula

_____ 7. complementary angles

_____ 8. supplementary angles

a. two angles whose measures have a sum of 90°

b. an angle whose measure is less than 90°

c. the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the two legs

d. an angle whose measure is between 90° and 180°

e. two angles whose measures have a sum of 180°

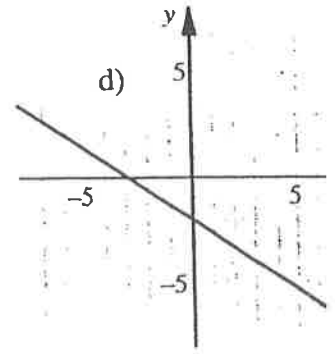
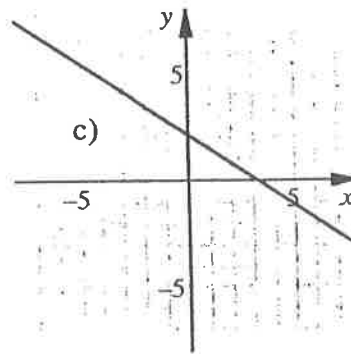
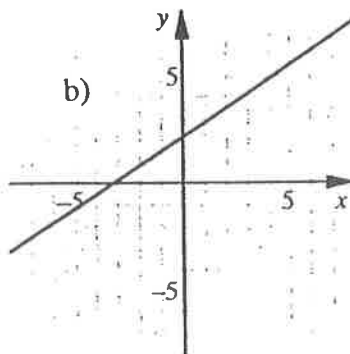
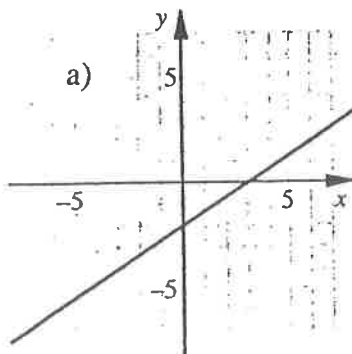
f. an angle whose measure is 90°

g. $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

h. the union of two rays with a common endpoint

Choose the letter that best describes the correct answer to the question asked.

_____ 1. The graph of $2x - 3y = 6$ is:



_____ 2. The point $(-3, -5)$ is in the:

- a) first quadrant
- b) second quadrant
- c) third quadrant
- d) fourth quadrant

_____ 3. The distance between the points $(7, 10)$ and $(1, -1)$ is:

- a) $\sqrt{15}$
- b) $\sqrt{117}$
- c) $\sqrt{157}$
- d) $20\sqrt{3}$

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4. Which point will be on the terminal side of a 90° angle drawn in standard position?

- a) (0, 3)
- b) (3, 0)
- c) (3, 3)
- d) (3, -3)

5. Which point will be on the terminal side of a 45° angle drawn in standard position?

- a) (0, 2)
- b) (2, 0)
- c) (2, 2)
- d) (-2, 2)

6. If (2, -5) is on the terminal side of θ , then $\cos \theta =$

- a) $-\frac{5}{12}$
- b) $\frac{2}{\sqrt{29}}$
- c) $-\frac{5}{\sqrt{29}}$
- d) $-\frac{2}{5}$

7. The supplement of an angle of 68° is an angle of

- a) 90°
- b) 112°
- c) 180°
- d) 22°

8. If (9, 12) is on the terminal side of θ , then $\cot \theta =$

- a) $\frac{4}{5}$
- b) $\frac{4}{3}$
- c) $\frac{3}{4}$
- d) $\frac{5}{3}$

9. If $\sin \theta = -1$ and $0 < \theta < 360^\circ$, then $\theta =$

- a) 90°
- b) 180°
- c) 270°
- d) 300°

10. If $\cos \theta = -\frac{12}{13}$ and θ terminates in the second quadrant then $\sin \theta =$

- a) $\frac{5}{13}$
- b) $-\frac{5}{13}$
- c) $\frac{5}{12}$
- d) $-\frac{5}{12}$

11. $\cos 180^\circ =$

- a) -1
- b) 0
- c) 1
- d) undefined

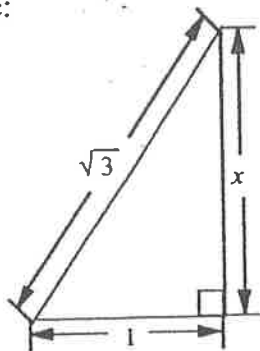
12. Both $\tan \theta$ and $\cos \theta$ are negative if θ is in the

- a) first quadrant
- b) second quadrant
- c) third quadrant
- d) fourth quadrant

13. Given the triangle:

$x =$

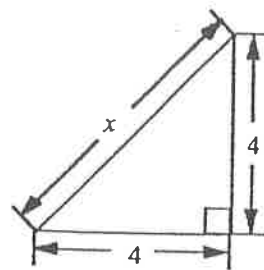
- a) 2
- b) $\sqrt{3}$
- c) $2\sqrt{3}$
- d) $\sqrt{2}$



14. Given the triangle:

$x =$

- a) 4
- b) $4\sqrt{2}$
- c) 8
- d) 16



15. If $\tan \theta = \frac{8}{15}$, and θ terminates in the third quadrant then $\csc \theta =$

- a) $-\frac{17}{8}$
- b) $-\frac{8}{17}$
- c) $-\frac{15}{17}$
- d) $-\frac{17}{15}$

16. If the shortest side of a $30^\circ-60^\circ-90^\circ$ triangle is 2, then the hypotenuse is:

- a) $2\sqrt{2}$
- b) $4\sqrt{2}$
- c) $\sqrt{2}$
- d) 4

17. If $\sec \theta = \frac{10}{3}$, then $\cos \theta =$

- a) $\frac{3}{10}$
- b) $\frac{3}{\sqrt{91}}$
- c) $\frac{10}{\sqrt{91}}$
- d) $\frac{\sqrt{91}}{10}$

18. A Pythagorean identity in trigonometric form is:

- a) $\sin^2 \theta + 1 = \cos^2 \theta$
- b) $\cos^2 \theta - 1 = \sin^2 \theta$
- c) $1 + \cos^2 \theta = \sin^2 \theta$
- d) $1 - \cos^2 \theta = \sin^2 \theta$

19. $\cot \theta =$

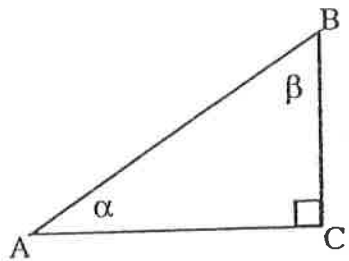
- a) $\frac{\sin \theta}{\sec \theta}$
- b) $\frac{\cos \theta}{\sin \theta}$
- c) $\frac{\sin \theta}{\cos \theta}$
- d) $\frac{\tan \theta}{\csc \theta}$

20. If $\sec \theta = -2$, then $\sec^3 \theta =$

- a) 6
- b) -6
- c) 8
- d) -8

Indicate whether each statement is true or false. In the space provided below, for each statement you found to be false, explain your reasoning.

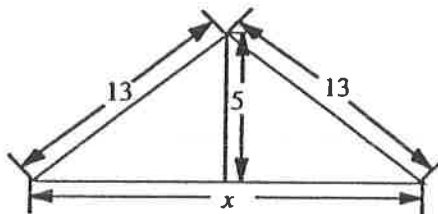
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1. True or False: If $\alpha = 54^\circ$, then $\beta = 36^\circ$.

2. True or False: If $\alpha = \beta - 10^\circ$, then $\beta = 50^\circ$.

3. True or False: In the isosceles triangle at right, $x = 12$.



4. True or False: If the vertex angle of an isosceles triangle is 70° , then each base angle is 55° .

5. True or False: If the beam of a lighthouse makes one complete revolution in 45 seconds, then it rotates 120° in 15 seconds.

6. True or False: If the hypotenuse of a $45^\circ-45^\circ-90^\circ$ triangle is 10, then each side is equal to $5\sqrt{2}$.

7. True or False: If the side opposite the 60° angle of a $30^\circ-60^\circ-90^\circ$ triangle is 6, then the hypotenuse is 12.

For each problem below:

a) draw the given angle in standard position, making sure the terminal side is in the correct quadrant

b) label each side of the triangle formed with the given information

c) find the value of all of the trigonometric expressions (leave answers in radical form/ instead of using decimal approximations)

1. If $\sin \theta = -\frac{\sqrt{3}}{2}$, and θ terminates in the third quadrant then

$\sin \theta =$ $\csc \theta =$

$\cos \theta =$ $\sec \theta =$

$\tan \theta =$ $\cot \theta =$

2. If $\sec \theta = \frac{5}{3}$ and $\sin \theta < 0$,

$\sin \theta =$ $\csc \theta =$

$\cos \theta =$ $\sec \theta =$

$\tan \theta =$ $\cot \theta =$

3. If $\csc \theta = \frac{13}{5}$ and $\cos \theta < 0$, then

$\sin \theta =$ $\csc \theta =$

$\cos \theta =$ $\sec \theta =$

$\tan \theta =$ $\cot \theta =$

Work on these identity problems!! They are very important to your grade don't blow this off!!!

Write in terms of $\sin \theta$ and $\cos \theta$ only.

1. $\sin \theta \tan \theta + \cos \theta =$

2. $\frac{\cot \theta}{\csc \theta} =$

3. $\sec \theta \cot \theta - \csc \theta =$

4. $\csc \theta \cot \theta \tan \theta =$

Show that each of the following statements is an identity by transforming the left side of each one into the right side. Show all steps!!!

5. $\sec \theta (\sin \theta + \cos \theta) = \tan \theta + 1$

6. $\cos \theta \cot \theta + \sin \theta = \csc \theta$

7. $\frac{\sec \theta \cot \theta}{\csc \theta} = 1$

8. $\frac{\cos \theta}{\sec \theta} + \frac{\sin \theta}{\csc \theta} = 1$

9. If $x = 5 \tan \theta$, then $\sqrt{x^2 + 25} =$

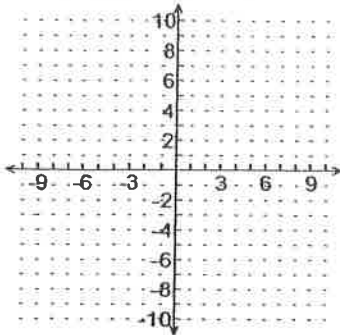
10. simplify: $(\sin \theta + \cos \theta)^2 =$

Simplify: 11. $(\cos \theta - 3)(2\cos \theta + 5)$

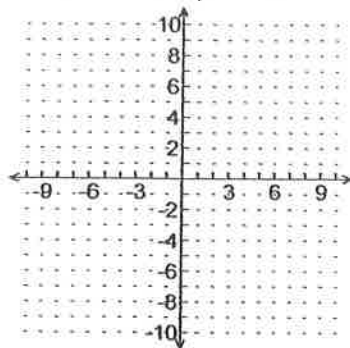
Trigonometry review Chapter 1

Graph the following:

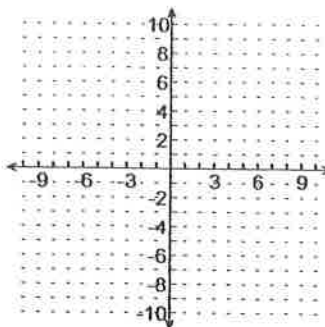
1. $2x - 3y = 6$



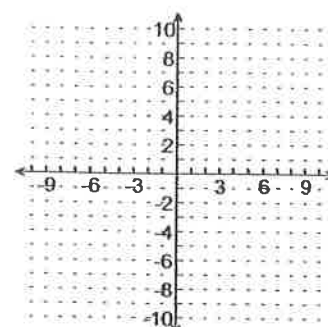
2. $2x + 5y = 15$



3. $y = x^2 + 3$



4. $y = 2x^2 - 4$



All students take calculus can help you remember whether the sine cosine and tangent are positive or negative in each of the four quadrants. Starting with quadrant I, all are positive, then QII, the sine is positive, in QIII the tangent is positive and in QIV the cosine is positive.

With this in mind, decide whether the cosecant, secant and cotangent are positive or negative in each quadrant.

	QI	QII	QIII	QIV
Csc				
sec				
cot				

If $\tan\theta < 0$ and $\sec\theta < 0$ then θ is in

If $\tan\theta = 3$ and $\sin\theta < 0$, then $\cos\theta =$

If $\tan\theta < 0$ and $\sec\theta > 0$ then θ is in the:

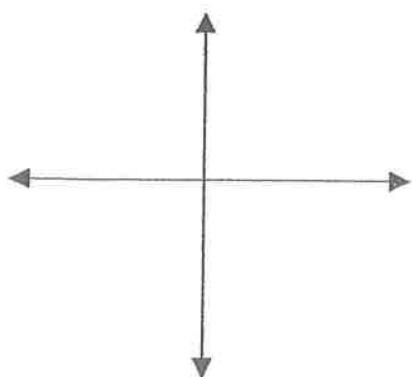
- a. $-\frac{3}{10}$ b. $\frac{3}{10}$ c. $\frac{1}{10}$ d. $-\frac{1}{10}$

- a. first quadrant b. second quadrant
c. third quadrant d. fourth quadrant

true or false

The $\cot^2\theta = \sec^2\theta - 1$ _____

If the $\tan\theta = 12/5$ and $\cos\theta < 0$ find the remaining trigonometric ratios.



Find out where you are first!!!!!!

$\sin\theta =$ _____ $\csc\theta =$ _____

$\cos\theta =$ _____ $\sec\theta =$ _____

$\tan\theta =$ _____ $\cot\theta =$ _____

