

**Math 3 Unit 8 Worksheet 3**

**Coterminal Angles and Evaluating Trig Functions for Angles**

\*\* Scientific calculator not allowed. \*\*

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Per: \_\_\_\_\_

[1-5]: Identify one positive coterminal angle and one negative coterminal angle for each of the following.

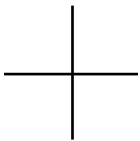
1.  $\theta = 100^\circ$       2.  $\theta = 200^\circ$       3.  $\theta = 50^\circ$       4.  $\theta = -110^\circ$       5.  $\theta = -400^\circ$

Pos  $\angle =$  \_\_\_\_\_      Pos  $\angle =$  \_\_\_\_\_      Pos  $\angle =$  \_\_\_\_\_      Pos  $\angle =$  \_\_\_\_\_      Pos  $\angle =$  \_\_\_\_\_

Neg  $\angle =$  \_\_\_\_\_      Neg  $\angle =$  \_\_\_\_\_      Neg  $\angle =$  \_\_\_\_\_      Neg  $\angle =$  \_\_\_\_\_      Neg  $\angle =$  \_\_\_\_\_

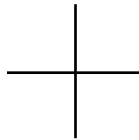
[6-20]: A) Sketch each angle in standard position. B) Identify the quadrant in which the terminating ray lies. C) Identify the reference angle. D) And identify the sine, cosine, and tangent ratio for each.

6.  $\theta = 60^\circ$



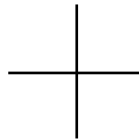
b) Quadrant \_\_\_\_\_  
c) Ref  $\angle \theta' =$  \_\_\_\_\_  
d) sin \_\_\_\_\_ = \_\_\_\_\_  
cos \_\_\_\_\_ = \_\_\_\_\_  
tan \_\_\_\_\_ = \_\_\_\_\_

7.  $\theta = 240^\circ$



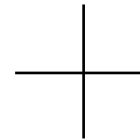
b) Quadrant \_\_\_\_\_  
c) Ref  $\angle \theta' =$  \_\_\_\_\_  
d) sin \_\_\_\_\_ = \_\_\_\_\_  
cos \_\_\_\_\_ = \_\_\_\_\_  
tan \_\_\_\_\_ = \_\_\_\_\_

8.  $\theta = 30^\circ$



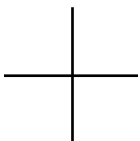
b) Quadrant \_\_\_\_\_  
c) Ref  $\angle \theta' =$  \_\_\_\_\_  
d) sin \_\_\_\_\_ = \_\_\_\_\_  
cos \_\_\_\_\_ = \_\_\_\_\_  
tan \_\_\_\_\_ = \_\_\_\_\_

9.  $\theta = 150^\circ$



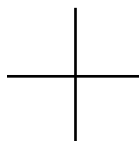
b) Quadrant \_\_\_\_\_  
c) Ref  $\angle \theta' =$  \_\_\_\_\_  
d) sin \_\_\_\_\_ = \_\_\_\_\_  
cos \_\_\_\_\_ = \_\_\_\_\_  
tan \_\_\_\_\_ = \_\_\_\_\_

10.  $\theta = 45^\circ$



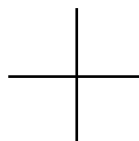
b) Quadrant \_\_\_\_\_  
c) Ref  $\angle \theta' =$  \_\_\_\_\_  
d) sin \_\_\_\_\_ = \_\_\_\_\_  
cos \_\_\_\_\_ = \_\_\_\_\_  
tan \_\_\_\_\_ = \_\_\_\_\_

11.  $\theta = 315^\circ$



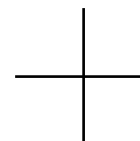
b) Quadrant \_\_\_\_\_  
c) Ref  $\angle \theta' =$  \_\_\_\_\_  
d) sin \_\_\_\_\_ = \_\_\_\_\_  
cos \_\_\_\_\_ = \_\_\_\_\_  
tan \_\_\_\_\_ = \_\_\_\_\_

12.  $\theta = 120^\circ$



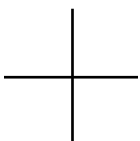
b) Quadrant \_\_\_\_\_  
c) Ref  $\angle \theta' =$  \_\_\_\_\_  
d) sin \_\_\_\_\_ = \_\_\_\_\_  
cos \_\_\_\_\_ = \_\_\_\_\_  
tan \_\_\_\_\_ = \_\_\_\_\_

13.  $\theta = 225^\circ$



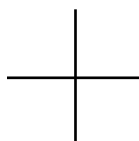
b) Quadrant \_\_\_\_\_  
c) Ref  $\angle \theta' =$  \_\_\_\_\_  
d) sin \_\_\_\_\_ = \_\_\_\_\_  
cos \_\_\_\_\_ = \_\_\_\_\_  
tan \_\_\_\_\_ = \_\_\_\_\_

14.  $\theta = -150^\circ$



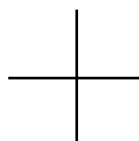
b) Quadrant \_\_\_\_\_  
c) Ref  $\angle \theta' =$  \_\_\_\_\_  
d) sin \_\_\_\_\_ = \_\_\_\_\_  
cos \_\_\_\_\_ = \_\_\_\_\_  
tan \_\_\_\_\_ = \_\_\_\_\_

15.  $\theta = -300^\circ$



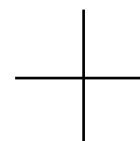
b) Quadrant \_\_\_\_\_  
c) Ref  $\angle \theta' =$  \_\_\_\_\_  
d) sin \_\_\_\_\_ = \_\_\_\_\_  
cos \_\_\_\_\_ = \_\_\_\_\_  
tan \_\_\_\_\_ = \_\_\_\_\_

16.  $\theta = -135^\circ$



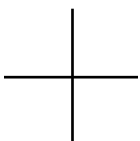
b) Quadrant \_\_\_\_\_  
c) Ref  $\angle \theta' =$  \_\_\_\_\_  
d) sin \_\_\_\_\_ = \_\_\_\_\_  
cos \_\_\_\_\_ = \_\_\_\_\_  
tan \_\_\_\_\_ = \_\_\_\_\_

17.  $\theta = -210^\circ$



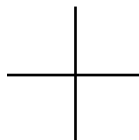
b) Quadrant \_\_\_\_\_  
c) Ref  $\angle \theta' =$  \_\_\_\_\_  
d) sin \_\_\_\_\_ = \_\_\_\_\_  
cos \_\_\_\_\_ = \_\_\_\_\_  
tan \_\_\_\_\_ = \_\_\_\_\_

18.  $\theta = 495^\circ$



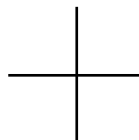
b) Quadrant \_\_\_\_\_  
c) Ref  $\angle \theta' =$  \_\_\_\_\_  
d) sin \_\_\_\_\_ = \_\_\_\_\_  
cos \_\_\_\_\_ = \_\_\_\_\_  
tan \_\_\_\_\_ = \_\_\_\_\_

19.  $\theta = 690^\circ$



b) Quadrant \_\_\_\_\_  
c) Ref  $\angle \theta' =$  \_\_\_\_\_  
d) sin \_\_\_\_\_ = \_\_\_\_\_  
cos \_\_\_\_\_ = \_\_\_\_\_  
tan \_\_\_\_\_ = \_\_\_\_\_

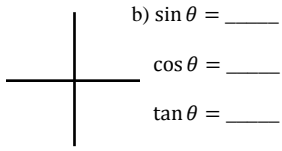
20.  $\theta = 600^\circ$



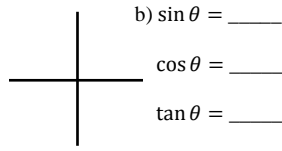
b) Quadrant \_\_\_\_\_  
c) Ref  $\angle \theta' =$  \_\_\_\_\_  
d) sin \_\_\_\_\_ = \_\_\_\_\_  
cos \_\_\_\_\_ = \_\_\_\_\_  
tan \_\_\_\_\_ = \_\_\_\_\_

[21-30]: A) Sketch each angle in standard position. B) And identify the sine, cosine, and tangent ratio for each.

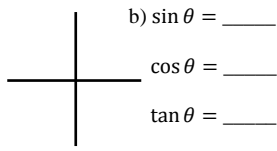
21.  $\theta = 90^\circ$



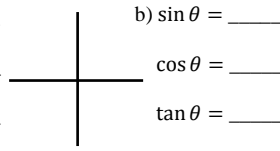
22.  $\theta = 270^\circ$



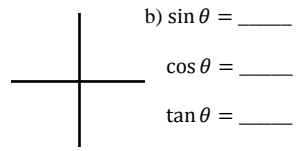
23.  $\theta = 180^\circ$



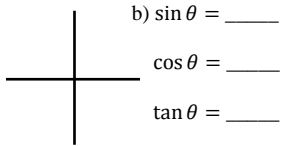
24.  $\theta = 0^\circ$



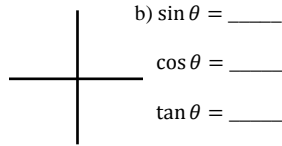
25.  $\theta = 630^\circ$



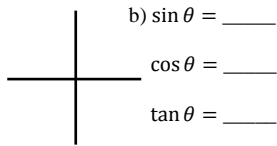
26.  $\theta = -540^\circ$



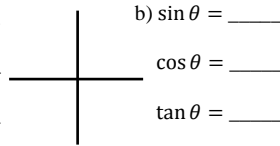
27.  $\theta = -450^\circ$



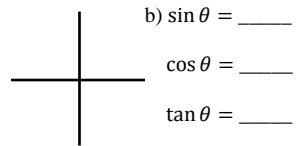
28.  $\theta = 810^\circ$



29.  $\theta = 1080^\circ$



30.  $\theta = -630^\circ$



[31-40]: Identify all of the quadrants where the terminating ray for  $\theta$  can lie so that the equation is true. {Hint #1: There should be at least two quadrants identified for each of these. Hint #2: Do not attempt to actually solve for  $\theta$ , just identify the quadrants where the reference angle will make the equation true. Hint #3:  $\sin^2 \theta$  is mathematical notation for  $(\sin \theta)^2$ .}

31.  $\sin \theta = -\frac{1}{5}$

32.  $\cos \theta = \frac{1}{4}$

33.  $\tan \theta = -3$

34.  $\sin \theta = \pm \frac{2}{5}$

35.  $\cos \theta = -\frac{1}{10}$

36.  $\tan \theta = \frac{4}{3}$

37.  $\sin \theta = \frac{1}{3}$

38.  $\cos \theta = \pm \frac{3}{5}$

39.  $\tan \theta = \pm \frac{10}{7}$

40.  $\sin^2 \theta = \frac{5}{16}$