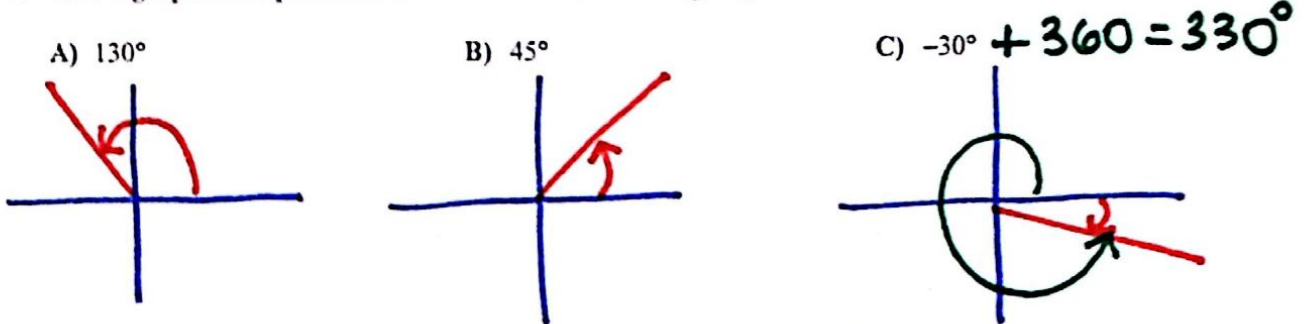


1. Give a graphical representation of each of the following angles.



2. Determine the quadrant in which the terminal side of each of the following angles resides.

A) 172° B) -315° C) 718°

II I IV

3. Convert each of the following to Radians. $\cdot \frac{\pi}{180}$

A) $120^\circ \cdot \frac{\pi}{180} = \frac{2\pi}{3}$ B) $210^\circ \cdot \frac{\pi}{180} = \frac{7\pi}{6}$ C) $-60^\circ \cdot \frac{\pi}{180} = -\frac{\pi}{3}$ D) $420^\circ \cdot \frac{\pi}{180} = \frac{7\pi}{3}$

4. Convert each of the following from Radians to Degrees. $\cdot \frac{180}{\pi}$

A) $\frac{\pi}{6} \cdot \frac{180}{\pi} = 30^\circ$ B) $\frac{5\pi}{3} \cdot \frac{180}{\pi} = 300^\circ$ C) $-\frac{\pi}{2} \cdot \frac{180}{\pi} = -90^\circ$ D) $\frac{3\pi}{4} \cdot \frac{180}{\pi} = 135^\circ$

5. Find one positive and one negative coterminal angle of each of the following. There is no need to graph the angles.

A) 30° B) -40° C) 150° D) 220°

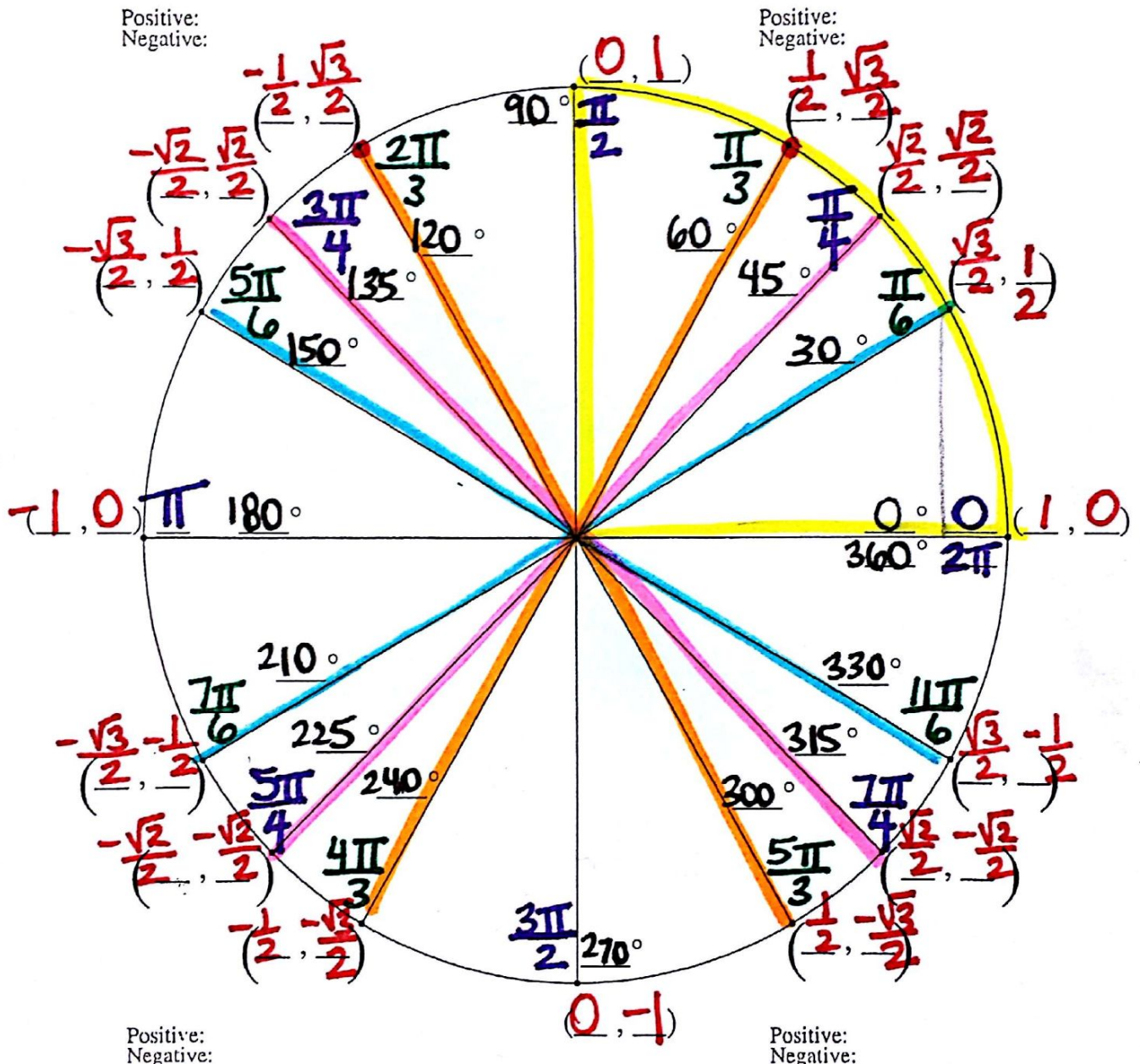
-330° -400° -210° -140°

390° 320° 510° 580°

$30 + 360$ $30 - 360$

$+360^\circ$ -360° $+2\pi$ -2π

Fill in The Unit Circle



EmbeddedMath.com

Student Name: _____

Score: _____

Find the exact value of a given trigonometric ratio

1. $\sin \frac{\pi}{2} = 1$

2. $\cos \frac{\pi}{2} = 0$

3. $\tan \frac{\pi}{6} = \frac{\sqrt{3}}{3}$

4. $\sin \frac{\pi}{3} = \frac{\sqrt{3}}{2}$

5. $\cot 0 =$
undefined

6. $\sec \frac{\pi}{4} = \sqrt{2}$

7. $\csc \frac{\pi}{6} = 2$

8. $\tan \frac{\pi}{2} =$
undefined

9. $\cos \frac{\pi}{4} = \frac{\sqrt{2}}{2}$

10. $\cos \frac{\pi}{3} = \frac{1}{2}$

11. $\csc \frac{\pi}{4} = \sqrt{2}$

12. $\tan \frac{\pi}{4} = 1$

13. $\tan 0 = 0$

14. $\cos \frac{\pi}{6} = \frac{\sqrt{3}}{2}$

15. $\sec \frac{\pi}{2} =$
undefined

16. $\cot \frac{\pi}{2} = 0$

17. $\csc \frac{\pi}{3} = \frac{2\sqrt{3}}{3}$

18. $\sin \frac{\pi}{6} = \frac{1}{2}$

19. $\sec \frac{\pi}{6} = \frac{2\sqrt{3}}{3}$

20. $\tan \frac{\pi}{3} = \sqrt{3}$

21. $\csc \frac{\pi}{2} = 1$

22. $\cot \frac{\pi}{4} = 1$

23. $\sec \frac{\pi}{3} = 2$

24. $\cot \frac{\pi}{6} = \sqrt{3}$

Quiz: draw angles/quadrant
 Convert R → D D → R
 coterminal
 Quad I, evaluate

Unit Circle Worksheet

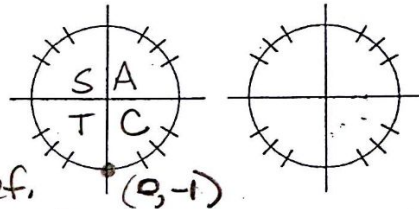
Name _____

4) ref $\angle = 60^\circ$

$$\frac{\sec 60^\circ}{\cos 60^\circ} = -2$$

Use the unit circle and the first quadrant chart to find the given values:

θ°	0	30	45	60	90
θ^r	0	$\pi/6$	$\pi/4$	$\pi/3$	$\pi/2$
$\sin \theta$	0	$1/2$	$\sqrt{2}/2$	$\sqrt{3}/2$	1
$\cos \theta$	1	$\sqrt{3}/2$	$\sqrt{2}/2$	$1/2$	0
$\tan \theta$	0	$\sqrt{3}/3$	1	$\sqrt{3}$	undef.



- $\sin(45^\circ) = \sqrt{2}/2$
- $\cos(30^\circ) = \sqrt{3}/2$
- $\tan(60^\circ)$
- $\sec(120^\circ) = -2$
- $\cot(225^\circ) = 1$
- $\csc(330^\circ)$
- $\cos(270^\circ) = 0$
- $\tan(90^\circ)$ und.
- $\sin(180^\circ)$
- $\csc(-45^\circ) = -\sqrt{2}$
- $\sec(-150^\circ) = -\frac{2\sqrt{3}}{3}$
- $\cot(-120^\circ)$
- $\tan(570^\circ) = -\sqrt{3}/3$
- $\cos(495^\circ) = -\frac{\sqrt{2}}{2}$
- $\sin(660^\circ)$
- $\sin(\frac{\pi}{6}) = \frac{1}{2}$
- $\cos(\frac{\pi}{3}) = \frac{1}{2}$
- $\tan(\frac{\pi}{4})$
- $\sec(\frac{3\pi}{4}) = -\sqrt{2}$
- $\cot(\frac{5\pi}{3}) = -\sqrt{3}$
- $\csc(\frac{7\pi}{6})$
- $\cos(\frac{\pi}{2}) = 0$
- $\tan(\pi) = 0$
- $\sin(\frac{3\pi}{2})$
- $\csc(-\frac{2\pi}{3}) = -\frac{2\sqrt{3}}{3}$
- $\sec(-\frac{5\pi}{4}) = -\frac{\sqrt{2}}{2}$
- $\cot(-\frac{11\pi}{6})$
- $\tan(\frac{11\pi}{4}) = -1$
- $\cos(\frac{17\pi}{3}) = \frac{1}{2}$
- $\sin(\frac{19\pi}{6})$

10)

coterminal $\angle = 315^\circ$

ref $\angle = 45^\circ$

$$\sin 45^\circ = \frac{\sqrt{2}}{2}$$

$$\frac{1}{\sin 45^\circ} = \sqrt{2}$$

13)

coterm $\angle = 210^\circ$

ref $\angle = 30^\circ$

$$\tan 30^\circ = \frac{\sqrt{3}}{3}$$

19) ref $\angle = \frac{\pi}{4}$

$$\sec \frac{\pi}{4}$$

$$\frac{1}{\cos \pi/4} = \sqrt{2}$$

28) coterm $\angle = \frac{3\pi}{4}$

ref $\angle = \frac{\pi}{4}$

$$\tan \frac{\pi}{4} = 1 \text{ QII}$$

25) coterm $\angle = \frac{4\pi}{3}$

ref $\angle = \frac{\pi}{3}$

$$\csc \frac{\pi}{3} =$$

$$\frac{1}{\sin \pi/3} = \frac{2\sqrt{3}}{3}$$

Name: Key

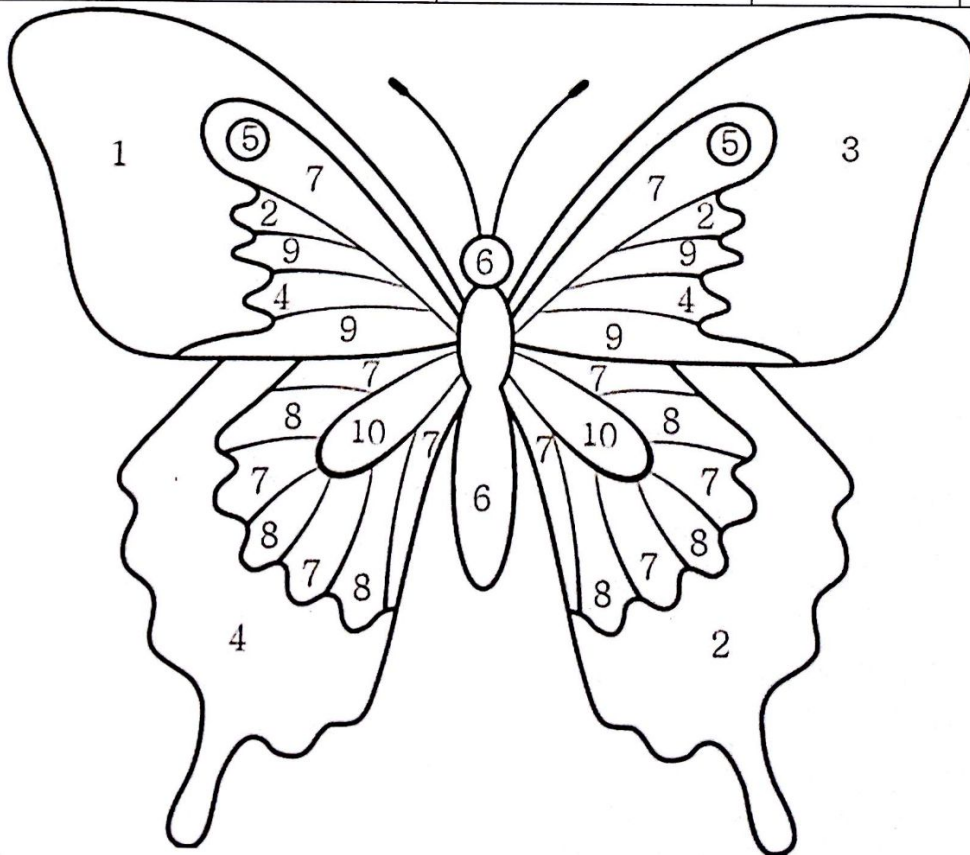
Period:

Date:

Color-by-numbers Practice: Trig Ratios on the Unit Circle

Evaluate each trig ratio. Simplify answers completely and show work. Use the answers to color in the picture.

1] $\sin -210^\circ$ $\frac{1}{2}$	4] $\csc \frac{-2\pi}{3}$ $-\frac{2\sqrt{3}}{3}$	7] $\cot \frac{-\pi}{6}$ $-\sqrt{3}$	10] $\cos 450^\circ$ 0	<ul style="list-style-type: none"> $\frac{\sqrt{3}}{3}$ = yellow $-\frac{\sqrt{2}}{2}$ = red -2 = purple -1 = light green $-\sqrt{3}$ = light green $\frac{\sqrt{3}}{2}$ = dark green $-\frac{\sqrt{3}}{2}$ = red <ul style="list-style-type: none"> 0 = dark blue 1 = black $\frac{2\sqrt{3}}{3}$ = pink $\sqrt{2}$ = orange $-\frac{2\sqrt{3}}{3}$ = orange $-\frac{1}{2}$ = brown $\frac{1}{2}$ = yellow undefined = dark blue
2] $\sec \frac{7\pi}{4}$ $\sqrt{2}$	5] $\tan \frac{7\pi}{2}$ 0	8] $\sin -600^\circ$ $\frac{\sqrt{3}}{2}$		
3] $\tan 390^\circ$ $\frac{\sqrt{3}}{3}$	6] $\sec \frac{-10\pi}{3}$ -2	9] $\cos \frac{-5\pi}{6}$ $-\frac{\sqrt{3}}{2}$		



Assignment

Find the exact value of each trigonometric function.

1) $\cos -120^\circ$ $-\frac{1}{2}$

3) $\cos 120^\circ$ $-\frac{1}{2}$

5) $\sec 0$ 1

7) $\cot 0$ *undefined*

9) $\cos \frac{\pi}{6}$ $\frac{\sqrt{3}}{2}$

11) $\sec \frac{\pi}{3}$ 2

13) $\sec -\frac{4\pi}{3}$ -2

15) $\sin \frac{5\pi}{4}$ $-\frac{\sqrt{2}}{2}$

17) $\cos -90^\circ$ 0

19) $\tan 210^\circ$ $\frac{\sqrt{3}}{3}$

21) $\cot \frac{\pi}{2}$ *undefined*

Name **KEY** ID: 1
Date _____ Period _____

2) $\csc -\frac{2\pi}{3}$ $-\frac{2\sqrt{3}}{3}$

4) $\sin -\frac{5\pi}{6}$ $-\frac{1}{2}$

6) $\sin -\frac{2\pi}{3}$ $-\frac{\sqrt{3}}{2}$

8) $\sin \frac{4\pi}{3}$ $-\frac{\sqrt{3}}{2}$

10) $\csc \frac{\pi}{6}$ 2

12) $\sin -\frac{\pi}{6}$ $-\frac{1}{2}$

14) $\cot -120^\circ$ $\frac{\sqrt{3}}{3}$

16) $\cot -\frac{7\pi}{6}$ $-\sqrt{3}$

18) $\cos \frac{4\pi}{3}$ $-\frac{1}{2}$

20) $\csc -\frac{11\pi}{6}$ 2

22) $\sec \frac{5\pi}{3}$ 2

23) $\cot -\frac{3\pi}{2}$ *undefined*

25) $\sin -\frac{5\pi}{4}$ $\sqrt{2}$

27) $\csc -135^\circ$ $-\sqrt{2}$

29) $\csc 30^\circ$ 2

31) $\cot -\frac{11\pi}{6}$ $\sqrt{3}$

33) $\sec \frac{5\pi}{6}$ $-\frac{2\sqrt{2}}{3}$

35) $\cos -\frac{3\pi}{4}$ $-\frac{\sqrt{2}}{2}$

37) $\sin -90^\circ$ -1

39) $\sin -\frac{3\pi}{2}$ 1

41) $\sin \frac{11\pi}{6}$ $-\frac{1}{2}$

43) $\tan -270^\circ$ *undefined*

45) $\cot -\frac{7\pi}{4}$ 1

47) $\tan 60^\circ$ $\sqrt{3}$

49) $\sec -135^\circ$ $-\sqrt{2}$

24) $\tan \frac{5\pi}{6}$ $-\frac{\sqrt{3}}{3}$

26) $\sin -225^\circ$ $\frac{\sqrt{2}}{2}$

28) $\tan -180^\circ$ 0

30) $\cos 135^\circ$ $-\frac{\sqrt{2}}{2}$

32) $\sec -\frac{5\pi}{6}$ $-\frac{2\sqrt{3}}{3}$

34) $\cot -330^\circ$ $\sqrt{3}$

36) $\tan 315^\circ$ -1

38) $\tan -330^\circ$ $\frac{\sqrt{3}}{3}$

40) $\csc -120^\circ$ $-\frac{2\sqrt{3}}{3}$

42) $\sin 120^\circ$ $\frac{\sqrt{3}}{2}$

44) $\tan -240^\circ$ $-\sqrt{3}$

46) $\csc -\frac{7\pi}{4}$ $\sqrt{2}$

48) $\cot -90^\circ$ *undefined*

50) $\cos \frac{\pi}{4}$ $\frac{\sqrt{2}}{2}$