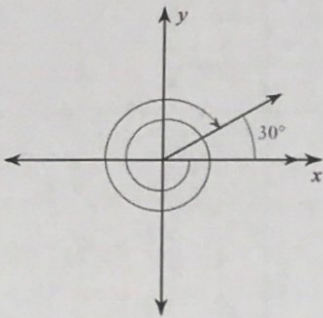


Benchmark 1 Review

Date _____ Period _____

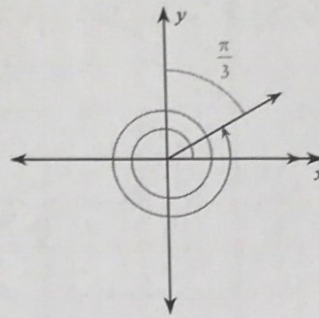
Find the measure of each angle.

1)



$$-690^\circ$$

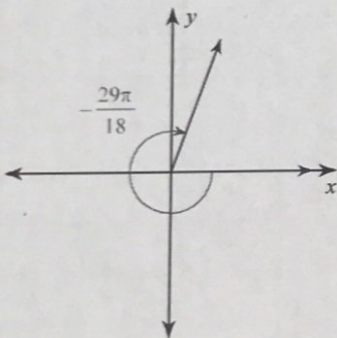
2)



$$\frac{25\pi}{6}$$

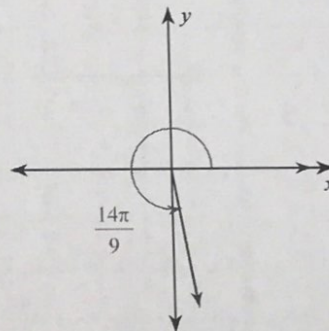
Find the reference angle.

3)



$$\frac{7\pi}{18}$$

4)



$$\frac{4\pi}{9}$$

Solve each equation for $0 \leq \theta < 2\pi$.

5) $3\csc \theta = -3\sqrt{2}$

$$\frac{5\pi}{4}, \frac{7\pi}{4}$$

6) $-4\sqrt{2} = 8\cos \theta$

$$\frac{3\pi}{4}, \frac{5\pi}{4}$$

$$7) 1 - 8\sin \theta = 5$$

$$\frac{7\pi}{6}, \frac{11\pi}{6}$$

$$8) 6 = 3 - 3\tan \theta$$

$$\frac{3\pi}{4}, \frac{7\pi}{4}$$

$$9) 1 - 10\cot \theta = -3\sqrt{3} + 1 - \cot \theta$$

$$\frac{\pi}{3}, \frac{4\pi}{3}$$

$$10) -3 - \sec \theta = -1 + \sec \theta$$

$$\pi$$

$$11) -4 + \frac{2}{3} \cdot \cos \theta = \frac{-12 + \sqrt{2}}{3}$$

$$\frac{\pi}{4}, \frac{7\pi}{4}$$

$$12) -2 - \frac{3}{4} \cdot \csc \theta = \frac{-4 - \sqrt{3}}{2}$$

$$\frac{\pi}{3}, \frac{2\pi}{3}$$

Find the amplitude, the period in radians, the phase shift in radians, and the vertical shift.

$$13) y = \frac{1}{2} \cdot \csc \left(\frac{\theta}{6} - \frac{\pi}{3} \right) - 3$$

$$a = \frac{1}{2}$$

$$p = 12\pi$$

$$ps = 2\pi$$

$$vs = -3$$

$$int = 3\pi$$

$$14) y = 7\sin \left(6\theta + \frac{2\pi}{3} \right) + 1$$

$$a = 7$$

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

$$ps = -\frac{\pi}{9}$$

$$vs = 1$$

$$int = \frac{\pi}{12}$$

$$15) y = -3 + \frac{1}{3} \cdot \cos \left(8\theta - \frac{2\pi}{3} \right)$$

$$a = \frac{1}{3}$$

$$p = \frac{\pi}{4}$$

$$ps = \frac{\pi}{12}$$

$$vs = -3$$

$$int = \frac{\pi}{16}$$

$$16) y = 1 + 2\tan \left(\frac{\theta}{8} + \frac{3\pi}{4} \right)$$

$$a = 2$$

$$p = \pi$$

$$ps = -6\pi$$

$$vs = 1$$

$$int = 2\pi$$

-2-

$$17) y = -4 + \frac{1}{9} \cdot \cot\left(4\theta + \frac{\pi}{3}\right)$$

$$a = \frac{1}{9}$$

$$p = \frac{\pi}{4}$$

$$ps = -\frac{\pi}{12} \quad \text{int} = \frac{\pi}{16}$$

$$vs = -4$$

$$18) y = 10\sec\left(\theta - \frac{\pi}{3}\right) + 5$$

$$a = 10$$

$$p = 2\pi$$

$$ps = \frac{\pi}{3} \quad \text{int} = \frac{\pi}{2}$$

$$vs = 5$$

Convert each degree measure into radians and each radian measure into degrees.

$$19) 45^\circ$$

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

$$20) \frac{23\pi}{4}$$

$$1035^\circ$$

Find the value of the trig function indicated.

$$21) \text{ Find } \cos \theta \text{ if } \sin \theta = \frac{2}{5} \text{ and } \tan \theta < 0$$

$$-\frac{\sqrt{21}}{5}$$

$$22) \text{ Find } \tan \theta \text{ if } \cos \theta = -\frac{8}{17} \text{ and } \csc \theta > 0$$

$$-\frac{15}{8}$$

$$23) \text{ Find } \tan \theta \text{ if } \csc \theta = \frac{13\sqrt{5}}{22} \text{ and } \cos < 0$$

$$-\frac{22}{19}$$

$$24) \text{ Find } \cos \theta \text{ if } \sec \theta = -\frac{5}{4} \text{ and } \cot > 0$$

$$-\frac{4}{5}$$

Find a positive and a negative coterminal angle for each given angle.

$$25) 685^\circ$$

$$325^\circ, -35^\circ$$

$$26) \frac{17\pi}{6}$$

$$\frac{5\pi}{6}, -\frac{7\pi}{4}$$

Find the exact value of each trigonometric function.

$$27) \tan \frac{21\pi}{4}$$

1

$$28) \cos \frac{13\pi}{6}$$

$\frac{\sqrt{3}}{2}$

$$29) \sec \frac{5\pi}{6}$$

$-\frac{2\sqrt{3}}{3}$

$$30) \cot -\frac{7\pi}{2}$$

0

$$31) \sin \frac{14\pi}{3}$$

$\frac{\sqrt{3}}{2}$

$$32) \csc -\frac{5\pi}{3}$$

$\frac{2\sqrt{3}}{3}$

$$33) \csc \frac{19\pi}{4}$$

$\sqrt{2}$

$$34) \sin \frac{17\pi}{6}$$

$\frac{1}{2}$

$$35) \cos \frac{17\pi}{3}$$

$\frac{1}{2}$

$$36) \sin \frac{3\pi}{2}$$

-1