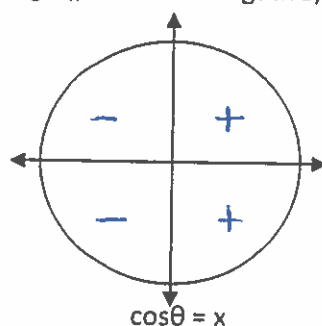
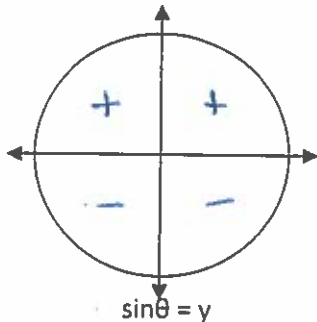


Name KEY

1) Fill in the quadrants of each circle with the correct sign (positive or negative).



Determine if the following values are positive, negative, zero, +1 or -1.

2) $\sin 177^\circ$ (+)

3) $\cos 210.5^\circ$ (-)

4) $\sin 742^\circ$ (+)

5) $\cos (-270^\circ)$ 0

6) $\sin \frac{5\pi}{6}$ (+)

7) $\sin \frac{4\pi}{3}$ (-)

8) $\cos 5\pi$ -1

9) $\cos -\frac{3\pi}{4}$ (-)

10) $\sin 1.6$ radians (+)

11) $\cos 4$ radians (-)

Determine which quadrant or axis is being described.

12) $\sin \theta > 0$ and $\cos \theta < 0$

II

13) $\sin \theta < 0$ and $\cos \theta = 0$

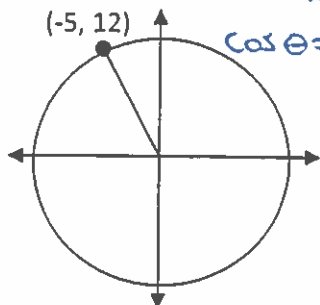
Y-AXIS

14) $\sin \theta > 0$ and $\sin(\theta - 90) < 0$

I

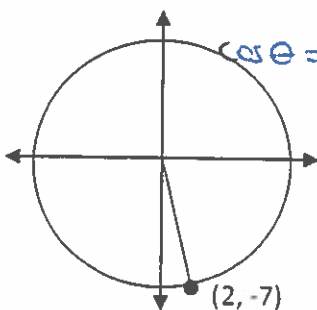
Find $\sin \theta$ and $\cos \theta$ for each angle pictured. Remember, $\sin \theta = \frac{y}{r}$ and $\cos \theta = \frac{x}{r}$

15) $\sin \theta = \frac{12}{13}$
 $\cos \theta = -\frac{5}{13}$



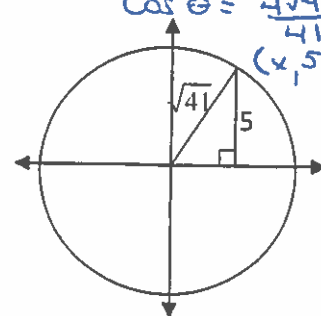
$25 + 144 = r^2$
 $169 = r^2$
 $13 = r$

16) $\sin \theta = \frac{-7\sqrt{53}}{53}$
 $\cos \theta = \frac{2\sqrt{53}}{53}$



$4 + 49 = r^2$
 $53 = r^2$

17) $\sin \theta = \frac{5\sqrt{41}}{41}$
 $\cos \theta = \frac{4\sqrt{41}}{41}$
(x, 5)



$x^2 + 25 = 41$
 $x^2 = 16$

Find the appropriate reference angle for each angle given. Formulas: $180 - \alpha$ or $\alpha - 180$ or $360 - \alpha$

18) $\cos 99^\circ$

$$-\cos 81^\circ$$

19) $\sin 300^\circ$

$$-\sin 60^\circ$$

20) $\cos (-22)^\circ$

$$\cos 22^\circ$$

21) $\cos 571^\circ$

$$-\cos 31^\circ$$

22) $\sin (-225)^\circ$

$$\sin 45^\circ$$

23) $\sin 875.25^\circ$

$$\sin 24.75^\circ$$

Give the exact sine or cosine values using reference angles for each angle given.

24) $\cos 240^\circ = -\cos 60^\circ$

$$-\frac{1}{2}$$

25) $\cos (-45)^\circ = \cos 45^\circ$

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

26) $\sin 480^\circ = \sin 60^\circ$

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

27) $\sin \frac{5\pi}{4} = 225^\circ$

$$= -\sin 45^\circ$$

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

28) $\cos \frac{11\pi}{6} = 330^\circ$

$$= \cos 30^\circ$$

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

29) $\sin -3\pi$

$$0$$

Use a calculator to find the value of each expression to four decimal places.

30) $\sin 107^\circ$.9563

31) $\cos (-33)^\circ$.8387

32) $\sin 229^\circ 24'$ -.7593

33) $\sin 2.9$ radians .2392

34) $\cos 5.45$.6725

35) $\cos (-2)$ -.4161