

UNIT 7 REVIEW SHEET

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

1) $-6\pi \cdot \frac{180}{\pi} = -1080^\circ$

2) $495^\circ \cdot \frac{\pi}{180} = \frac{11\pi}{4}$

3) $-\frac{17\pi}{6} \cdot \frac{180}{\pi} = -510^\circ$

4) $\frac{11\pi}{18} \cdot \frac{180}{\pi} = 110^\circ$

5) $-\frac{7\pi}{12} \cdot \frac{180}{\pi} = -105^\circ$

6) $-\frac{5\pi}{6} \cdot \frac{180}{\pi} = -150^\circ$

Find a positive and a negative coterminal angle for each given angle. *ADD or SUBTRACT 360 or 2π *

7) 120° $480^\circ, -240^\circ$

8) -45° $315^\circ, -405^\circ$

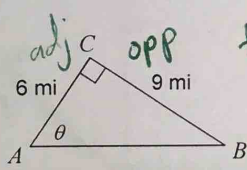
9) 270° $630^\circ, -90^\circ$

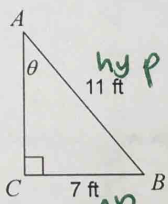
10) $-\frac{\pi}{6}$ $\frac{11\pi}{6}, -\frac{13\pi}{6}$

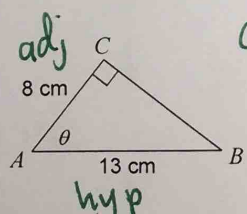
11) $\frac{8\pi}{15}$ $\frac{38\pi}{15}, -\frac{22\pi}{15}$

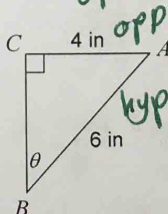
12) $-\frac{11\pi}{12}$ $\frac{13\pi}{12}, -\frac{35\pi}{12}$

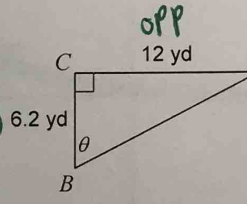
Find the measure of each angle indicated. Round to once decimal place.

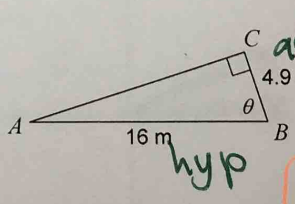
13)  $\tan \theta = \frac{9}{6}$
 $\theta = \tan^{-1}(\frac{9}{6})$
 $\theta = 56.3^\circ$

14)  $\sin \theta = \frac{7}{11}$
 $\theta = \sin^{-1}(\frac{7}{11})$
 $\theta = 39.5^\circ$

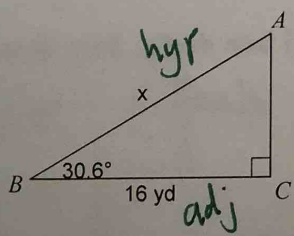
15)  $\cos \theta = \frac{8}{13}$
 $\theta = \cos^{-1}(\frac{8}{13})$
 $\theta = 52^\circ$

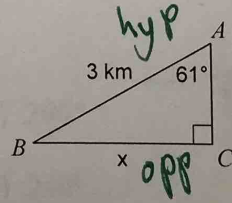
16)  $\sin \theta = \frac{4}{6}$
 $\theta = \sin^{-1}(\frac{4}{6})$
 $\theta = 41.8^\circ$

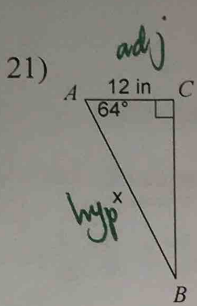
17)  $\tan \theta = \frac{12}{6.2}$
 $\theta = \tan^{-1}(\frac{12}{6.2})$
 $\theta = 62.7^\circ$

18)  $\cos \theta = \frac{4.9}{16}$
 $\theta = \cos^{-1}(\frac{4.9}{16})$
 $\theta = 72.2^\circ$

Find the measure of each side indicated. Round to one decimal place.

19)  $\cos 30.6 = \frac{16}{x}$
 $x \cos 30.6 = 16$
 $x = \frac{16}{\cos 30.6}$
 $x = 18.6 \text{ yd}$

20)  $\sin 61 = \frac{x}{3}$
 $3 \sin 61 = x$
 $x = 2.6 \text{ km}$

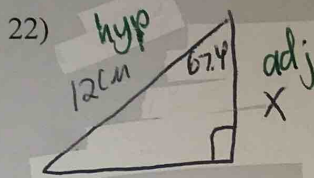


$$\cos 64^\circ = \frac{12}{x}$$

$$x \cos 64^\circ = 12$$

$$x = \frac{12}{\cos 64^\circ}$$

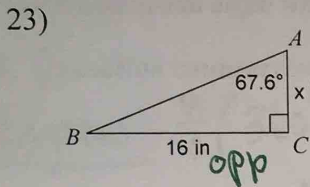
$$x = 27.4 \text{ in}$$



$$\cos 67.4^\circ = \frac{x}{12}$$

$$12 \cos 67.4^\circ = x$$

$$x = 4.6 \text{ cm}$$

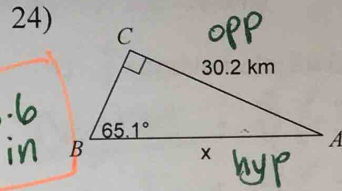


$$\tan 67.6^\circ = \frac{16}{x}$$

$$x \tan 67.6^\circ = 16$$

$$x = \frac{16}{\tan 67.6^\circ}$$

$$x = 6.6 \text{ in}$$



$$\sin 65.1^\circ = \frac{30.2}{x}$$

$$x \sin 65.1^\circ = 30.2$$

$$x = \frac{30.2}{\sin 65.1^\circ}$$

$$x = 33.3 \text{ km}$$

State the quadrant in which the terminal side of each angle lies (find a coterminal angle if necessary). Use coterminal angles to help you determine the quadrant. Change radians to degrees to help also.

25) $-\frac{13\pi}{4} \cdot \frac{180}{\pi} = -585^\circ + 360^\circ = -225^\circ + 360^\circ = 135^\circ$

Q2

26) $-552^\circ + 360^\circ = -192^\circ + 360^\circ = 168^\circ$

Q2

27) $710^\circ - 360^\circ = 350^\circ$

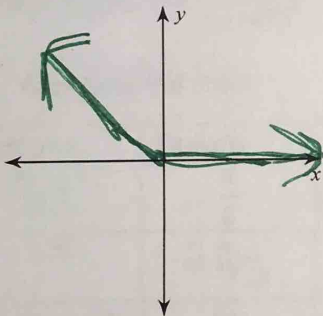
Q4

28) $\frac{13\pi}{4} \cdot \frac{180}{\pi} = 585^\circ - 360^\circ = 225^\circ$

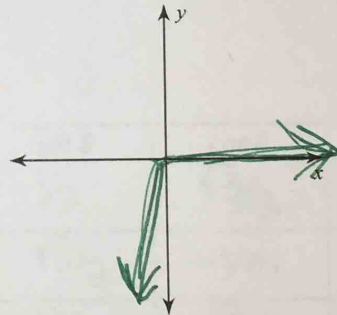
Q3

Draw an angle with the given measure in standard position.

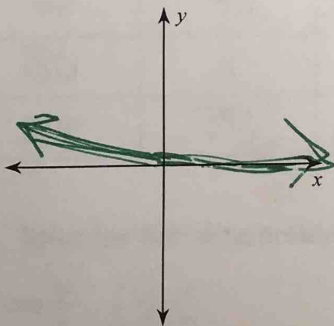
29) $-230^\circ + 360^\circ = 130^\circ$



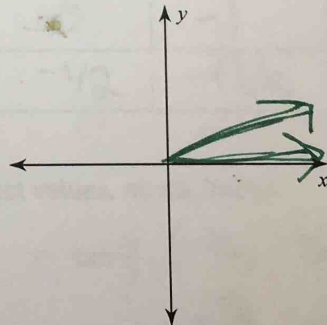
30) 260°



31) 150°

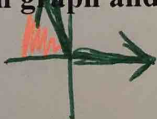


32) $\frac{\pi}{6} \cdot \frac{180}{\pi} = 30^\circ$



Sketch each graph and find the reference angle.

33) 95°



85°

34) 290°



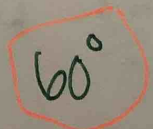
70°

35) 185°



5°

36) 240°



60°

Find the coterminal angle with given rotations:

38. -65° , 2 counterclockwise

$$-65 + 360 + 360 = 655^\circ$$

39. $\frac{5\pi}{6}$, 4 clockwise rotations

$$\frac{5\pi}{6} - 2\pi - 2\pi - 2\pi - 2\pi = -\frac{43\pi}{6}$$

Find the coterminal angle with given rotations (answer in both degrees and radians)

40. $\frac{2}{3}$ rotation counterclockwise

$$\text{Degrees: } \frac{2}{3}(360) = 240^\circ$$

$$\text{Radians: } \frac{2}{3}(2\pi) = \frac{4\pi}{3}$$

41. $\frac{9}{4}$ rotation clockwise

$$\text{Degrees: } \frac{9}{4}(-360) = -810^\circ$$

$$\text{Radians: } \frac{9}{4}(-2\pi) = -\frac{9\pi}{2}$$

42. Solve for EXACT value of y then find the 6 trig ratios.

$$y = 2\sqrt{10}$$

$$\sin x = \frac{3}{7}$$

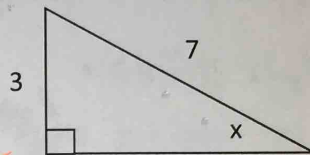
$$\csc x = \frac{7}{3}$$

$$\cos x = \frac{2\sqrt{10}}{7}$$

$$\sec x = \frac{7 \cdot \sqrt{10}}{2\sqrt{10}} = \frac{7\sqrt{10}}{20}$$

$$\tan x = \frac{3 \cdot \sqrt{10}}{2\sqrt{10}} = \frac{3\sqrt{10}}{20}$$

$$\cot x = \frac{2\sqrt{10}}{3}$$



$$\begin{aligned} y^2 + 3^2 &= 7^2 \\ y^2 + 9 &= 49 \\ y^2 &= 40 \\ y &= \sqrt{40} \\ y &= 2\sqrt{10} \end{aligned}$$

$$\begin{aligned} 40 &= 2 \cdot 20 \\ 20 &= 5 \cdot 4 \\ 4 &= 2 \cdot 2 \end{aligned}$$

43. Complete the chart.

Degrees	Radians	(x, y)	Quadrant	sin θ	cos θ	tan θ
30°	$\frac{\pi}{6}$	$(\frac{\sqrt{3}}{2}, \frac{1}{2})$	1	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{3}$
120°	$2\pi/3$	$(-\frac{1}{2}, \frac{\sqrt{3}}{2})$	2	$\frac{\sqrt{3}}{2}$	$-\frac{1}{2}$	$-\sqrt{3}$
225°	$\frac{5\pi}{4}$	$(-\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2})$	3	$-\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	1
90°	$\pi/2$	(0, 1)	Quadrantal	1	0	undefined
180°	π	(-1, 0)	Quadrantal	0	-1	0
210°	$7\pi/6$	$(-\frac{\sqrt{3}}{2}, -\frac{1}{2})$	3	$-\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{3}$

$$\tan \theta = y/x$$

if its not on the unit circle, find a coterminal angle that is!

44. Solve the following problems using your Unit Circle (exact values, no decimals).

a. $\cos \frac{7\pi}{4}$

$$\sqrt{2}/2$$

b. $\sin 30^\circ$

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

c. $\tan \frac{2\pi}{3}$

$$(-\frac{1}{2}, \frac{\sqrt{3}}{2})$$

$$-\sqrt{3}$$

d. $\cos 600^\circ - 360$

$$\cos 240 = -\frac{1}{2}$$

e. $\sin \frac{9\pi}{2} - 2\pi$

$$\sin 5\pi/2 - 2\pi$$

$$\sin \pi/2$$

$$1$$

f. $\tan \pi$

$$(-1, 0)$$

$$0$$

g. $\cos \frac{-11\pi}{4} + 2\pi$

$$\cos -3\pi/4 + 2\pi$$

$$\cos 5\pi/4$$

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

h. $\sin -225^\circ + 360$

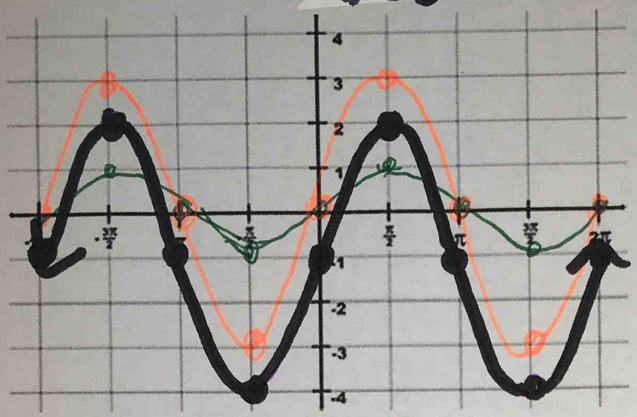
$$\sin 135$$

$$\sqrt{2}/2$$

- amp = 3 so 3 times taller
- entire graph moves down 1 unit

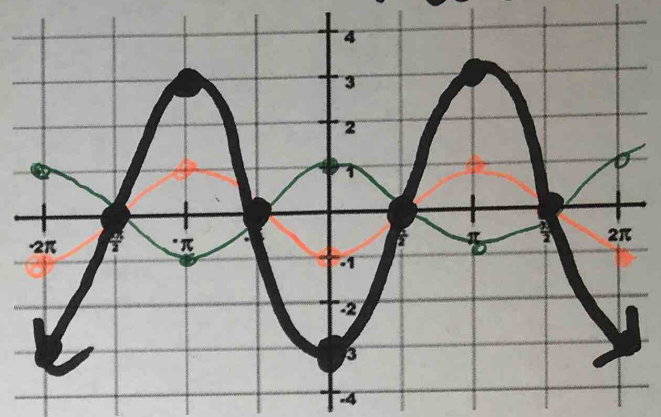
Graph each of the following. $\sin \theta$

45. $y = 3 \sin \theta - 1$
 $3 \sin \theta$
 $3 \sin \theta - 1$



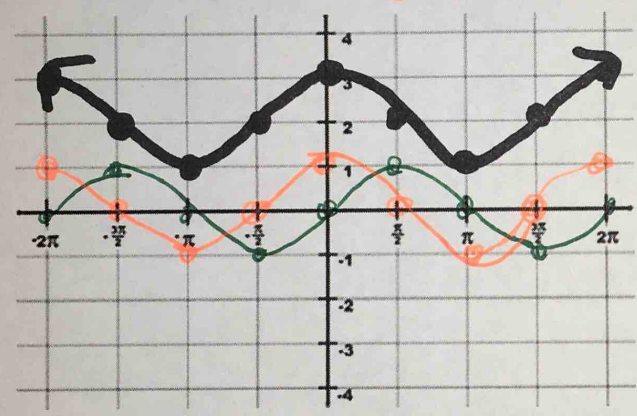
- amp = 3 so 3 times taller
- the negative flips it over

46. $y = -3 \cos \theta$
 $\cos \theta$
 $-\cos \theta$
 $-3 \cos \theta$



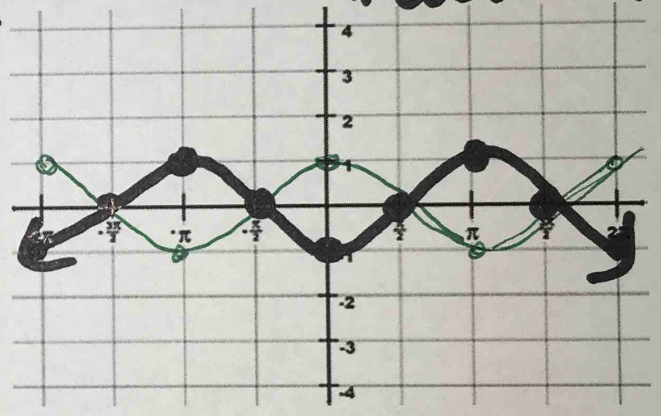
- shifts left 1 tick mark
- entire graph shifts up 2

47. $y = \sin(\theta + \frac{\pi}{2}) + 2$
 $\sin \theta$
 $\sin(\theta + \frac{\pi}{2})$
 $\sin(\theta + \frac{\pi}{2}) + 2$



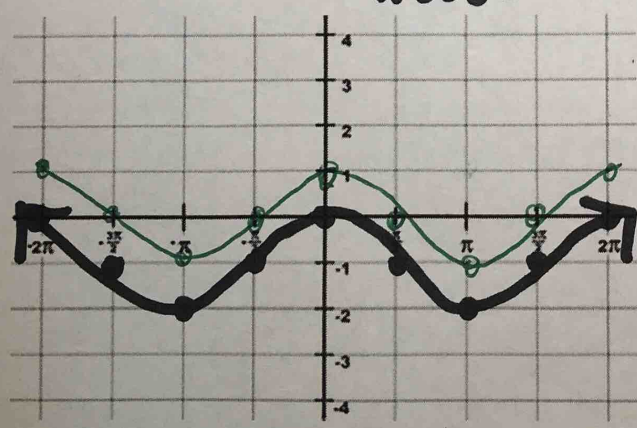
- shifts right 2 tick marks

48. $y = \cos(\theta - \pi)$
 $\cos \theta$
 $\cos(\theta - \pi)$

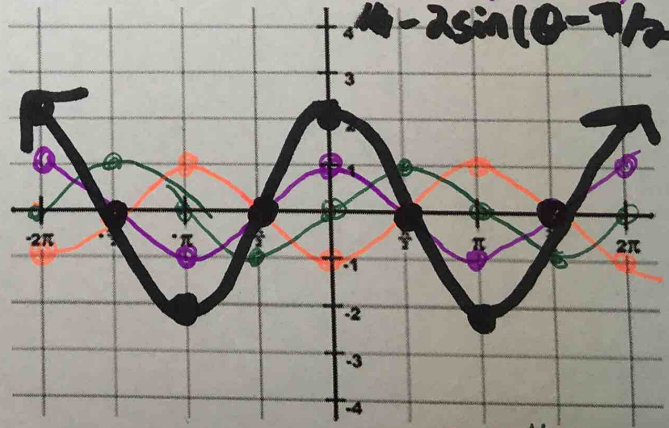


- shifts down 1 unit

49. $y = \cos \theta - 1$
 $\cos \theta$
 $\cos \theta - 1$



50. $y = -2 \sin(\theta - \frac{\pi}{2})$
 $\sin \theta$
 $\sin(\theta - \frac{\pi}{2})$
 $-\sin(\theta - \frac{\pi}{2})$
 $-2 \sin(\theta - \frac{\pi}{2})$



- amp = 2 so twice as tall
- negative so it flips over
- shifts right 1 tick mark