

NO CALCULATOR

1. $\cos 330^\circ$ $\frac{\sqrt{3}}{2}$
 QIV ⊕

2. $\sin 150^\circ$ $\frac{1}{2}$
 QII ⊕

3. $\tan 60^\circ$ $\sqrt{3}$
 QI ⊕

4. $\cot 210^\circ$ $\sqrt{3}$
 QIII ⊕

5. $\sec 30^\circ$ $\frac{2}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$
 QI ⊕

6. $\csc 315^\circ$ $-\frac{2}{\sqrt{2}} = -\sqrt{2}$
 QIV ⊖

7. $\tan 135^\circ$ -1
 QII ⊖

8. $\cot 240^\circ$ $\frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$
 QIII ⊕

9. $\sec 120^\circ$ $-\frac{2}{1} = -2$
 QII ⊖

10. $\csc 300^\circ$ $-\frac{2}{\sqrt{3}} = -\frac{2\sqrt{3}}{3}$
 QIV ⊖

11. $\tan 270^\circ$ $\frac{-1}{0}$
 undef
 +
 (0, -1)
 c s

12. $\tan 330^\circ$ $\frac{-1}{\sqrt{3}} = -\frac{\sqrt{3}}{3}$
 QIV ⊖

13. $\cot 45^\circ$ 1
 QI ⊕

14. $\sec 90^\circ$ $\frac{1}{0}$
 undef
 +
 (0, 1)
 c s

15. $\sin 1440^\circ$ 0
 $1440^\circ - 4(360^\circ) = 0$
 +
 (1, 0)
 c s

16. $\cos 1260^\circ$ -1
 $1260^\circ - 3(360^\circ) = 180^\circ$
 +
 (-1, 0)
 c s

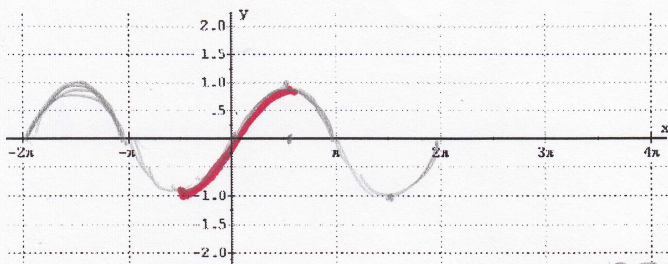
17. $\sec\left(\frac{5\pi}{4}\right)$ $-\frac{2}{\sqrt{2}} = -\sqrt{2}$
 QIII ⊖

18. $\csc\left(\frac{5\pi}{6}\right)$ $\frac{2}{1} = 2$
 QII ⊕

19. $\tan \pi$ $\frac{0}{1} = 0$
 +
 (-1, 0)
 c s

20. $\cot\left(\frac{7\pi}{4}\right)$ -1
 QIV ⊖

21. Graph $y = \sin x$ over $-2\pi \leq x \leq 2\pi$



x	0	$\pi/2$	π	$3\pi/2$	2π
y	0	1	0	-1	0

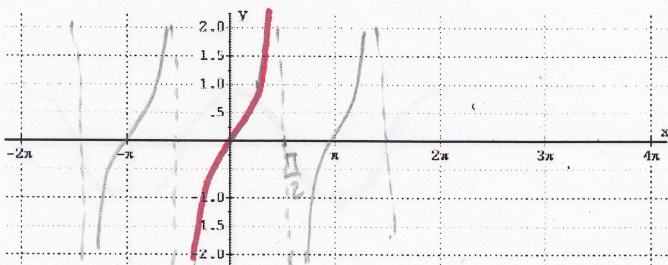
$-\frac{\pi}{2} \leq x \leq \frac{\pi}{2}$

Domain: *all real* Range: $-1 \leq y \leq 1$

Does this graph have an inverse? Why or why not? *no not 1-1*
 Darken a portion of the graph that is one-to-one and thus have an inverse.

Write the domain for $y = \sin x$

22) Graph $y = \tan x$ over $-2\pi \leq x \leq 2\pi$



x	0	$\pi/4$	$\pi/2$	$3\pi/4$	π	$5\pi/4$	$3\pi/2$	$7\pi/4$	2π
y	0	1	∞	-1	0	1	∞	-1	0

$-\frac{\pi}{2} < x < \frac{\pi}{2}$

Domain: $x \neq \frac{\pi}{2} + n\pi$ Range: *all real*

Does this graph have an inverse? Why or why not? *no not 1-1*
 Darken a portion of the graph that is one-to-one and thus have an inverse.

Write the domain for $y = \tan x$

23. Find one positive and one negative angles that are coterminal with -337°

$$-337^\circ + 360^\circ = 23^\circ$$

$$-337^\circ - 360^\circ = -697^\circ$$

24. Find one positive and one negative angles that are coterminal with $\frac{7\pi}{3}$

$$\frac{7\pi}{3} - 2\pi = \frac{\pi}{3}; \quad \frac{\pi}{3} - 2\pi = -\frac{5\pi}{3}$$

25. Convert to degrees: $\frac{9\pi}{5}$

$$\frac{9\pi}{5} \cdot \frac{180^\circ}{\pi} = 324^\circ$$

26. Convert to radians: -335°

$$\frac{-335^\circ}{1} \cdot \frac{\pi}{180^\circ} = \ominus \frac{67\pi}{36}$$

27. A sector of a circle has arc length 12 cm and central angle of 1.8 radians. Find the radius and area.

$$r\theta = 12$$

$$r(1.8) = 12$$

$$r = \frac{12}{1.8} = \frac{120}{18} = \frac{20}{3} \text{ cm}$$

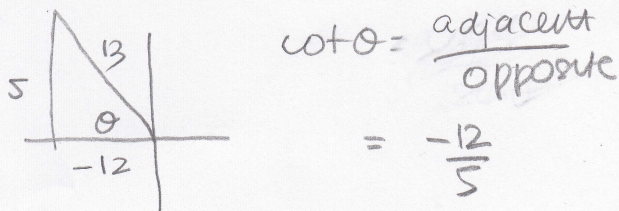
$$A = \frac{1}{2} \left(\frac{20}{3} \right)^2 (1.8) = 40 \text{ cm}^2$$

28. A sector of a circle has radius 12 cm and central angle of 325° . Find the arc length and area.

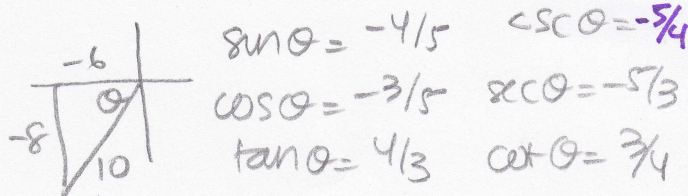
$$s = \frac{325^\circ}{360^\circ} \cdot 2\pi \cdot 12 = \frac{65\pi}{3} \text{ cm}$$

$$A = \frac{325^\circ}{360^\circ} \cdot \pi \cdot 12^2 = 130\pi \text{ cm}^2$$

29. $\cos \theta = \frac{-12}{13}; \frac{\pi}{2} \leq x < \pi$. Find $\cot \theta$



30. The point $(-6, -8)$ is on the terminal side of an angle. Find the 6 trig functions.



31. Express in terms of a reference angle:

$$\sin 280^\circ \rightarrow \text{Q IV} \rightarrow \sin = \ominus$$

$$\text{Ref } \angle = 360^\circ - 280^\circ = 80^\circ$$

$$\sin 280^\circ = \ominus \sin 80^\circ$$

32. Express in terms of a reference angle:

$$\tan 220^\circ \rightarrow \text{Q III} \rightarrow \tan = \oplus$$

$$\text{Ref } \angle = 220^\circ - 180^\circ = 40^\circ$$

$$\tan 220^\circ = + \tan 40^\circ$$

33. Express in terms of a reference angle:

$$\sec \frac{19\pi}{4} - 2\pi - 2\pi = \sec \frac{3\pi}{4} \rightarrow \text{Q II} \rightarrow \ominus$$

$$\cos \text{ is } \ominus \text{ in Q II}$$

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

34. Express in terms of a reference angle:

$$\cot \frac{53\pi}{6} - 8\pi = \cot \frac{5\pi}{6} \rightarrow \text{Q II}$$

$$\tan \text{ is } \ominus \text{ in Q II}$$

$$\rightarrow \ominus \cot \frac{\pi}{6}$$

35. $\cot \theta$ and $\cos \theta$ are both negative in what quadrant?

S	A
T	C

$\tan \text{ is } \ominus \text{ in Q II \& IV}$
 $\cos \text{ is } \ominus \text{ in Q II \& III}$

They are both neg
in Q II

36. $\tan \theta$ and $\sin \theta$ are both negative in what quadrant?

$\tan \text{ is } \ominus \text{ in Q II \& IV}$
 $\sin \text{ is } \ominus \text{ in Q III \& IV}$

They are both \ominus in Q IV

p285

1. $\tan 100^\circ = -5.671$ degree mode
 $\cot 276^\circ = -0.1051$ degree mode
 $\csc 5 = -1.043$ radian mode
 $\sec 2.14 = -1.855$ radian mode

3a $\sin 195^\circ \rightarrow Q \text{ III} \rightarrow \sin 15^\ominus \rightarrow \ominus \sin 15^\circ$
 $195^\circ - 180^\circ = 15^\circ$

b $\sec 280^\circ \rightarrow Q \text{ IV} \rightarrow \sec 15^\oplus \rightarrow \oplus \sec 80^\circ$
 $360^\circ - 280^\circ = 80^\circ$

c $\tan(-140^\circ) \rightarrow -140^\circ + 360^\circ = 220^\circ \rightarrow Q \text{ III} \rightarrow \tan \oplus \} \oplus \tan 40^\circ$
 $220^\circ - 180^\circ = 40^\circ$

d. $\sec 2 \rightarrow Q \text{ II} \rightarrow \sec \ominus$
 $3.14 - 2 = 1.14$
 $\rightarrow \ominus \sec 1.14$

