

- ✓ 33-36
- ✓ 11, 13b
- ✓ 22
- ✓ 43, 44
- 15, 19

1.6

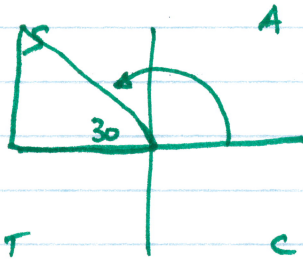
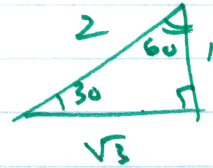
33

$$\csc x = 2$$

$$\sin x = \frac{1}{2}$$

$$x = \sin^{-1}\left(\frac{1}{2}\right)$$

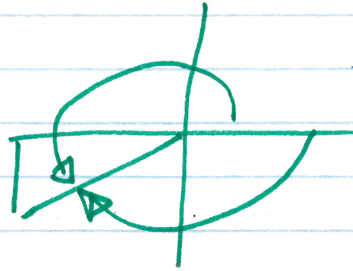
$$0 < x < 2\pi$$



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

$$180 - 30 = 150^\circ$$

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



11

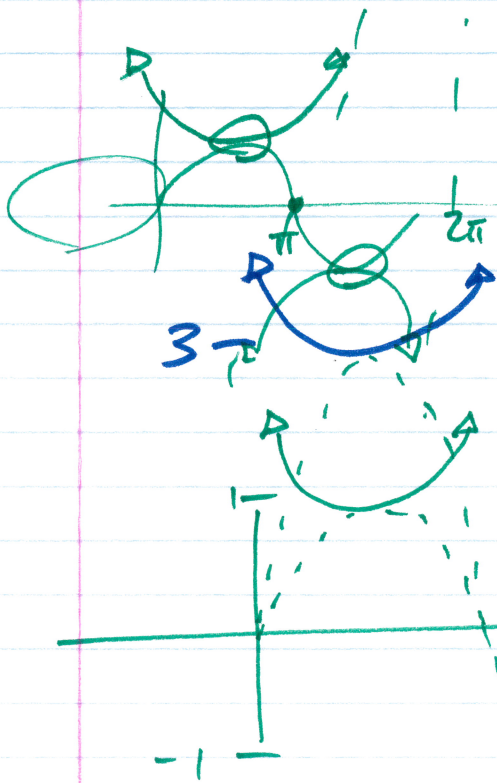
$$y = 3 \csc(3x + \pi) - 2$$

$$y = 3 \csc 3\left(x + \frac{\pi}{3}\right) - 2$$

(a)  $\frac{2\pi}{3} \frac{d}{dx}$

(b) all reals except  $0 \pm \frac{\pi}{3}k$

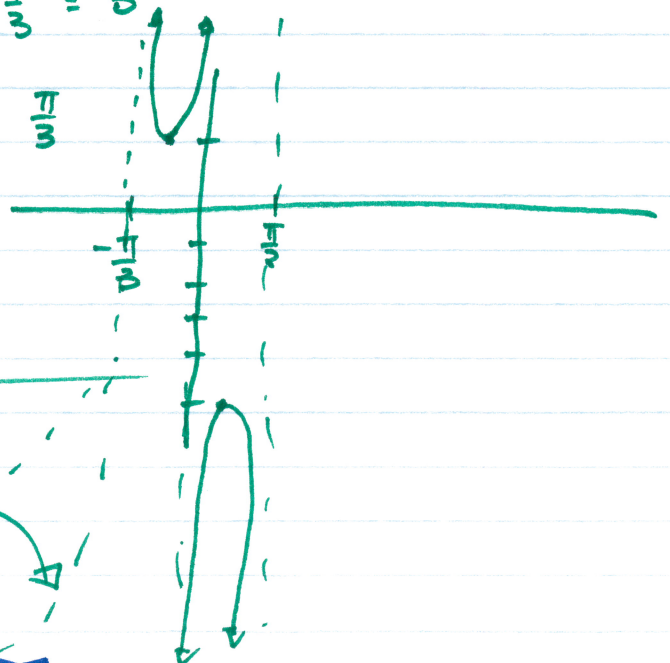
(c)  $(-\infty, -5] \cup [1, \infty)$



$$\frac{0}{\pi} = 0 \quad \frac{\pi}{\pi} = 1 \quad \frac{2\pi}{\pi} = 2$$

$$\frac{\pi}{\pi} = 1 \quad \frac{2\pi}{\pi} = 2$$

$$\frac{2\pi}{\pi} = 2 \quad \frac{3\pi}{\pi} = 3$$



-3 -

(136)

1.6

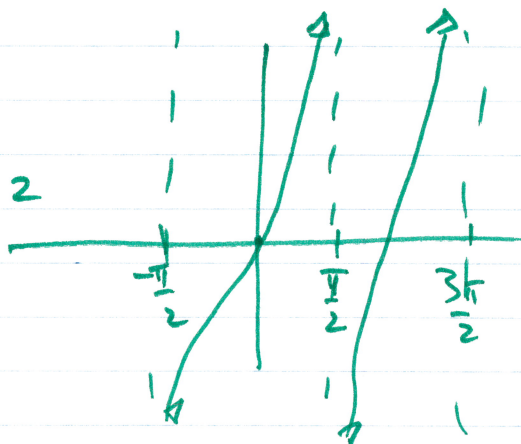
$$y = \tan x$$

asymptotes @  $\frac{\pi}{2}, \frac{3\pi}{2}, \dots$

$$y = -3 \tan(3x + \pi) + 2$$

$$y = -3 \tan\left(\frac{3}{4}\left(x + \frac{\pi}{3}\right)\right) + 2$$

$$\frac{\frac{\pi}{2}}{3} \cdot \frac{1}{3} = \frac{\pi}{6} - \frac{\pi}{3} = -\frac{\pi}{6}$$



$$\frac{\frac{3\pi}{2}}{3} \cdot \frac{1}{3} = \frac{\pi}{2} - \frac{\pi}{3} = \frac{3\pi}{6} - \frac{2\pi}{6} = \frac{\pi}{6}$$

ALL REALS EXCEPT  $\frac{\pi}{6} + \frac{\pi}{3}k$

$$\frac{-\frac{\pi}{2}}{3} = -\frac{\pi}{6} - \frac{\pi}{3} = -\frac{\pi}{6} - \frac{2\pi}{6} = -\frac{3\pi}{6} = -\frac{\pi}{2}$$

- (22) (a)  $\frac{2\pi}{\pi} = 2$
- (b) 1

- (43) (c) high  $63^\circ$  low  $-13^\circ$

$$\frac{63 - 13}{2} = 25$$

ADD

~~$$\frac{63 - (-13)}{2} = \frac{76}{2} = 38$$

SUBTR.~~

$$P = 12 \cdot B = \frac{2\pi}{B} \cdot B$$

~~$$y = 38 \sin\left(\frac{\pi}{6}(x - 3)\right) + 25$$~~

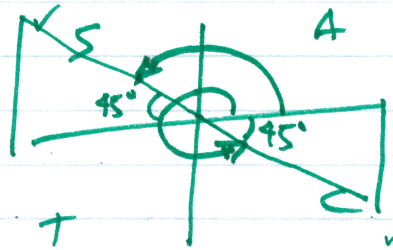
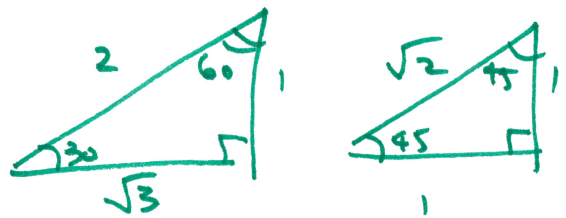
~~$$\frac{12B = 2\pi}{12} = \frac{\pi}{6}$$

$$B = \frac{\pi}{6}$$~~

$$y = 38 \sin\left(\frac{\pi}{6}(x - 3)\right) + 25$$

$$\text{PERIOD} = \frac{\text{OLD PERIOD}}{B}$$

$$12 = \frac{2\pi}{B}$$



1.6

36)  $\cot x = -1 \quad -\infty < x < \infty$

$$x = \frac{3\pi}{4} + \pi k$$

$$\cot x = -1$$

$$\tan x = -1$$

135°      $\pi - \frac{\pi}{4} = \frac{3\pi}{4}$

315°      $2\pi - \frac{\pi}{4} = \frac{7\pi}{4}$

$\frac{11\pi}{4}$

$\frac{15\pi}{4}$

14)  $y = 2 \sin(2x + \frac{\pi}{3})$

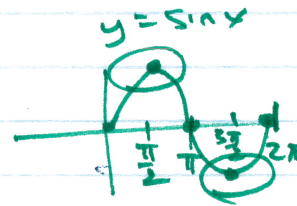
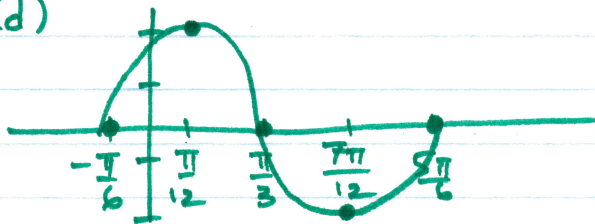
$$y = 2 \sin 2(x + \frac{\pi}{6})$$

(a)  $\frac{2\pi}{2} = \pi$

(b) ALL REAL

(c)  $[-2, 2]$

(d)



$$\frac{0}{2} = 0 - \frac{\pi}{6} = -\frac{\pi}{6}$$

$$\frac{\frac{\pi}{2}}{2} = \frac{\pi}{2} \cdot \frac{1}{2} = \frac{\pi}{4} - \frac{\pi}{6} = \frac{3}{12} - \frac{2}{12} = \frac{1}{12}$$

$$\frac{\pi}{2} - \frac{\pi}{6}$$

$$\frac{3\pi}{6} - \frac{\pi}{6} = \frac{2\pi}{6} = \frac{\pi}{3}$$

$$\frac{3\pi}{2} = \frac{3\pi}{4} - \frac{\pi}{6}$$

$$\frac{9\pi}{12} - \frac{2\pi}{12} = \frac{7\pi}{12}$$

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