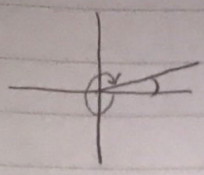
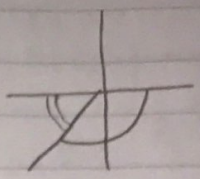
Unit 4 Trig (Ch 4)

1) 

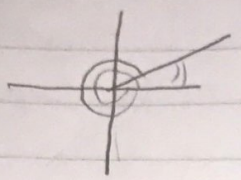
r: $\frac{\pi}{16}$

cot: $-\frac{31\pi}{16}$ + $\frac{33\pi}{16}$

2) 

r: $\frac{6\pi}{15}$

cot: $\frac{21\pi}{15}$, $-\frac{39\pi}{15}$

3) 

r: $\frac{\pi}{3}$

cot: $\frac{\pi}{3}$, $-\frac{5\pi}{3}$

4) $\frac{\pi}{8}$ C: $\frac{3\pi}{8}$

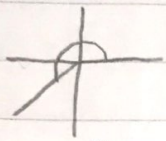
S: $\frac{7\pi}{8}$

5) $\frac{3\pi}{10}$ C: $\frac{2\pi}{10}$

S: $\frac{7\pi}{10}$

6) $\frac{2\pi}{21} = \frac{4\pi}{42}$ C: $\frac{17\pi}{42}$

S: $\frac{19\pi}{21}$

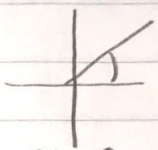
7) 

$\frac{\pi}{6}$

$\sin\theta = -\frac{1}{2}$ $\csc\theta = -2$

$\cos\theta = -\frac{\sqrt{3}}{2}$ $\sec\theta = -\frac{2\sqrt{3}}{3}$

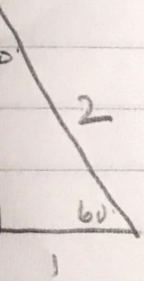
$\tan\theta = \frac{\sqrt{3}}{3}$ $\cot = \sqrt{3}$

8) 

$\sin\theta = \frac{\sqrt{2}}{2}$ $\csc\theta = \sqrt{2}$

$\cos\theta = \frac{\sqrt{2}}{2}$ $\sec\theta = \sqrt{2}$

$\tan\theta = 1$ $\cot = 1$



9) 

$\frac{\pi}{3}$

$\sin\theta = -\frac{\sqrt{3}}{2}$ $\csc\theta = -\frac{2\sqrt{3}}{3}$

$\cos\theta = -\frac{1}{2}$ $\sec\theta = -2$

$\tan\theta = \sqrt{3}$ $\cot = \frac{\sqrt{3}}{3}$

10) $\sin\theta + \cos\theta\cot\theta = \csc\theta$

$\sin\theta + \cos\theta\frac{\cos\theta}{\sin\theta}$

$\frac{\sin\theta}{\sin\theta}\sin\theta + \frac{\cos^2\theta}{\sin\theta}$

$\frac{\sin^2\theta + \cos^2\theta}{\sin\theta}$

$\frac{1}{\sin\theta} = \csc\theta$

11) $\frac{\cot\theta + \tan\theta}{\cot\theta} = \sec^2\theta$

$\frac{\cot\theta}{\cot\theta} + \frac{\tan\theta}{\cot\theta} =$

$1 + \frac{\tan\theta}{\frac{1}{\tan\theta}} =$

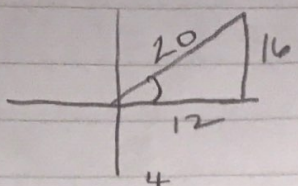
$1 + \tan^2\theta = \sec^2\theta$

12) $\csc\theta\tan\theta = \sec\theta$

$\frac{1}{\sin\theta} \cdot \frac{\sin\theta}{\cos\theta}$

$\frac{1}{\cos\theta} = \sec\theta$

13)

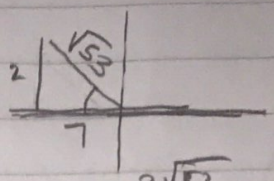


$\sin\theta = \frac{4}{5}$ $\csc\theta = \frac{5}{4}$

$\cos\theta = \frac{3}{5}$ $\sec\theta = \frac{5}{3}$

$\tan = \frac{4}{3}$ $\tan\theta = \frac{3}{4}$

14)

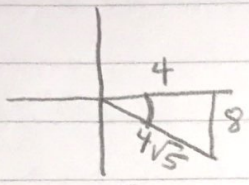


$\sin\theta = \frac{2\sqrt{53}}{53}$ $\csc\theta = \frac{\sqrt{53}}{2}$

$\cos\theta = -\frac{7\sqrt{53}}{53}$ $\sec\theta = \frac{-\sqrt{53}}{7}$

$\tan\theta = -\frac{2}{7}$ $\cot\theta = -\frac{7}{2}$

15)



$\sin\theta = -\frac{8}{4\sqrt{5}} = -\frac{8\sqrt{5}}{20}$ $\csc\theta = \frac{-4\sqrt{5}}{8}$

$\cos\theta = \frac{4}{4\sqrt{5}} = \frac{\sqrt{5}}{5}$ $\sec\theta = \frac{4\sqrt{5}}{4}$

$\tan\theta = -2$ $\cot\theta = -\frac{4}{8}$

16) $f(x) = 3\cos 2\pi x$

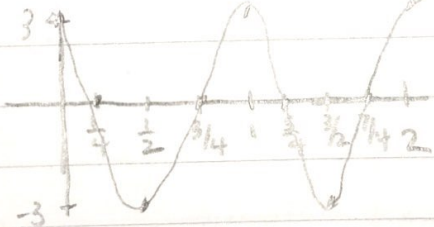
$a = 3$

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

$c = 0$

$d = 0$

Key $= \frac{1}{4}$



17) $f(x) = -2\sin\frac{1}{2}x$

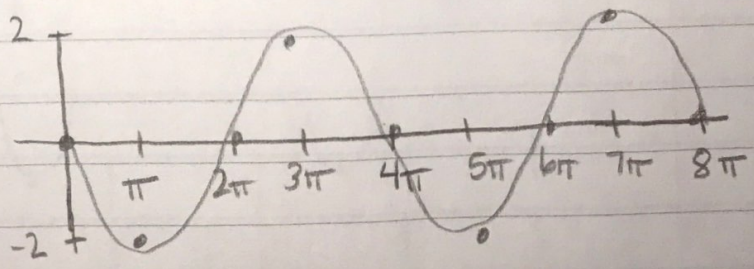
$a = 2$

$P = \frac{2\pi}{\frac{1}{2}} = 4\pi$

$c = 0$

$d = 0$

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



18) $f(x) = -\frac{1}{2} \sin \frac{\pi}{4} x$

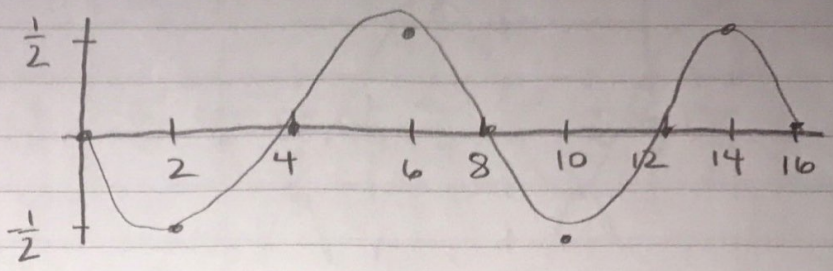
$a = \frac{1}{2}$

$P = \frac{2\pi}{\pi/4} = 8$

$c = 0$

$d = 0$

Key: $\frac{8}{4} = 2$



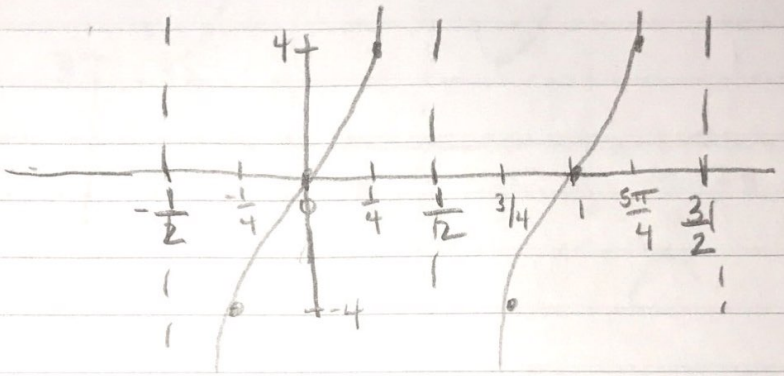
19) $f(x) = 4 \tan \pi x$

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

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

$\pi x = \frac{\pi}{2}$

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



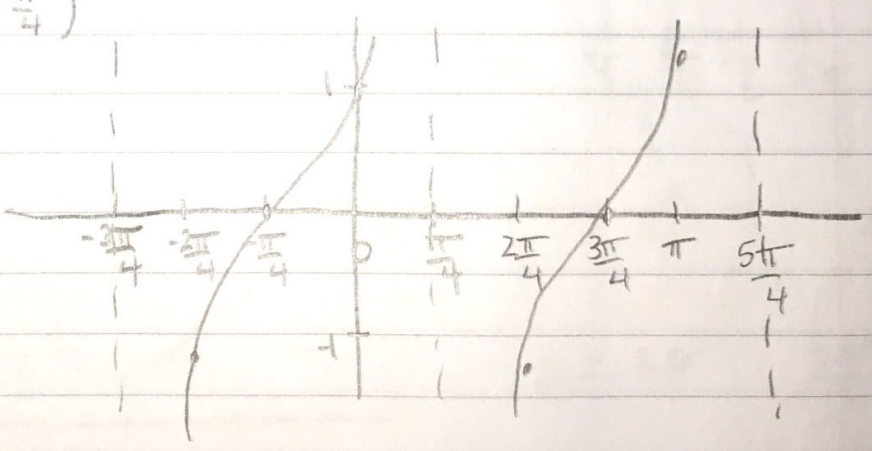
20) $\tan\left(x + \frac{\pi}{4}\right)$

$x + \frac{\pi}{4} = -\frac{\pi}{2}$

$x = -\frac{3\pi}{4}$

$x + \pi/4 = \pi/2$

$x = \pi/4$



21) $3 \underset{(\sin)}{\csc} \frac{1}{2} x$

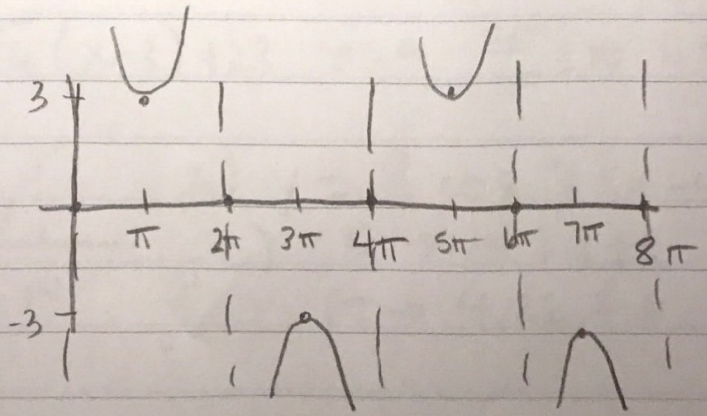
$a = 3$

$P = \frac{2\pi}{1/2} = 4\pi$

$c = 0$

$d = 0$

Key: $\frac{4\pi}{4} = \pi$



22) $f(x) = \underset{(\cos)}{\sec}\left(x - \frac{\pi}{4}\right)$

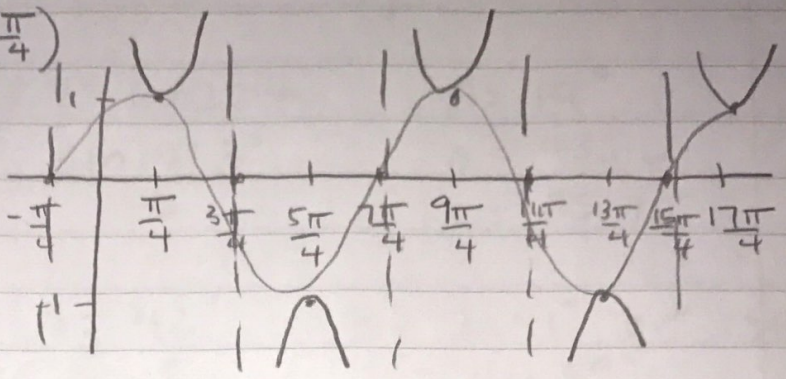
$a = 1$

$P = 2\pi = \frac{8\pi}{4}$

$C = \text{right } \frac{\pi}{4}$

$d = 0$

Key = $\frac{2\pi}{4}$



23) $f(x) = \frac{1}{4} \underset{(\sin)}{\csc} 2x$

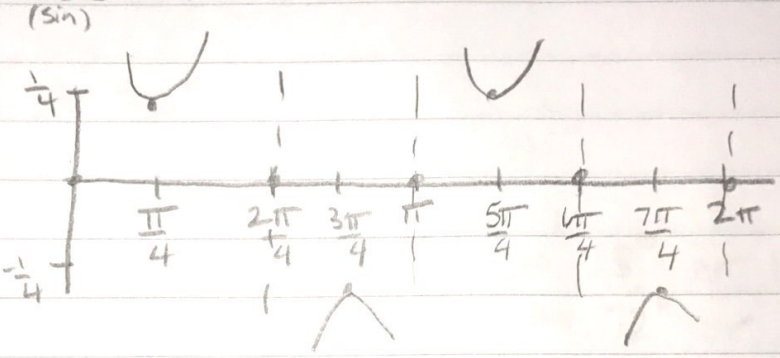
$a = \frac{1}{4}$

$P = \frac{2\pi}{2} = \pi$

$C = 0$

$d = 0$

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



24) $f(x) = 2 \underset{(\cos)}{\sec}(x - \pi)$

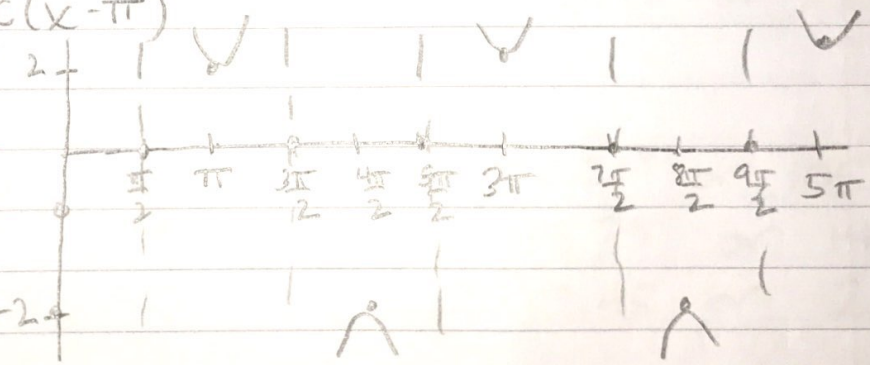
$a = 2$

$P = 2\pi =$

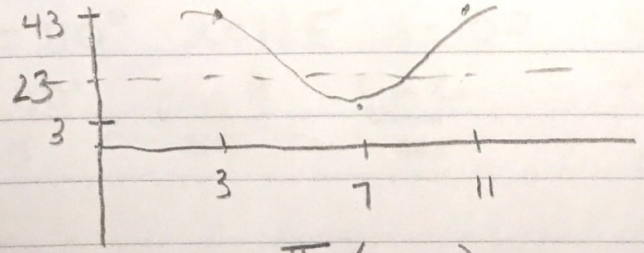
$C = \text{right } \pi$

$d = 0$

Key = $\frac{2\pi}{4} = \frac{\pi}{2}$



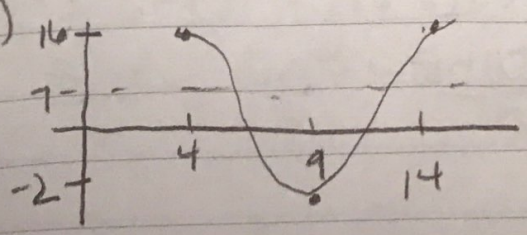
25)



a) $a = 20$ $\quad \frac{2\pi}{b} = 8$ $\quad b = \frac{\pi}{4}$

c) $y = 20 \cos \frac{\pi}{4}(x - 3) + 23$ $\quad a = 9$ $\quad \frac{2\pi}{b} = 10$ $\quad b = \frac{\pi}{5}$

26)



a)

b) $y = 9 \cos \frac{\pi}{5}(x - 4) + 7$

c) $5 \rightarrow 14.28 \text{ ft}$

$17 \rightarrow 4.22 \text{ ft}$