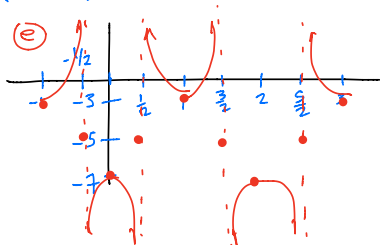


① $f(x) = -2\csc(\pi(x + \frac{1}{2})) - 5$

$|A| = 2$
 $|B| = \pi$
 $C = \text{left} + \frac{1}{2}$
 $D = \text{down } 5$
 $P = 2$
 $\frac{1}{4}P = \frac{1}{2}$



⑥ $P = 2$

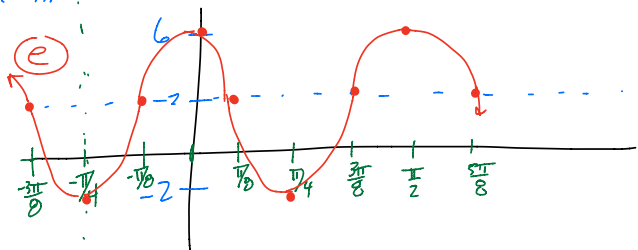
⑦ $D: \{x | x = -\frac{1}{2} + \frac{1}{n}\}$

⑧ $R: (-\infty, -7] \cup [-3, \infty)$

② $f(x) = -4\cos(-4(x + \frac{\pi}{4})) + 2$

③ $f(x) = -4\cos(4(x + \frac{\pi}{4})) + 2$

$|A| = 4$
 $|B| = 4$
 $C = \text{left} + \frac{\pi}{4}$
 $D = \text{up } 2$
 $P = \frac{2\pi}{4} = \frac{\pi}{2}$
 $\frac{1}{4}P = \frac{\pi}{8}$



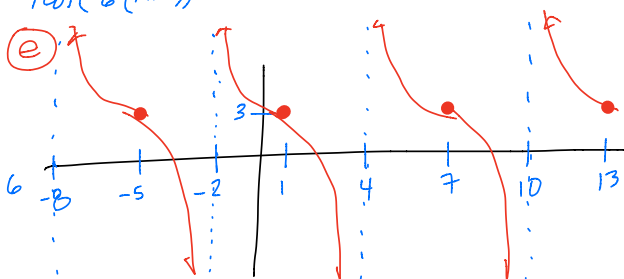
⑥ $P = \frac{\pi}{2}$

⑦ $D: \mathbb{R}$

⑧ $R: [-2, 6]$

③ $f(x) = 4\cot(\frac{\pi}{6}(x+2)) + 3$

$|A| = 4$
 $|B| = \frac{\pi}{6}$
 $C = \text{left} + 2$
 $D = \text{up } 3$
 $P = \frac{\pi}{\pi/6} = 6$
 $\frac{1}{2}P = 3$



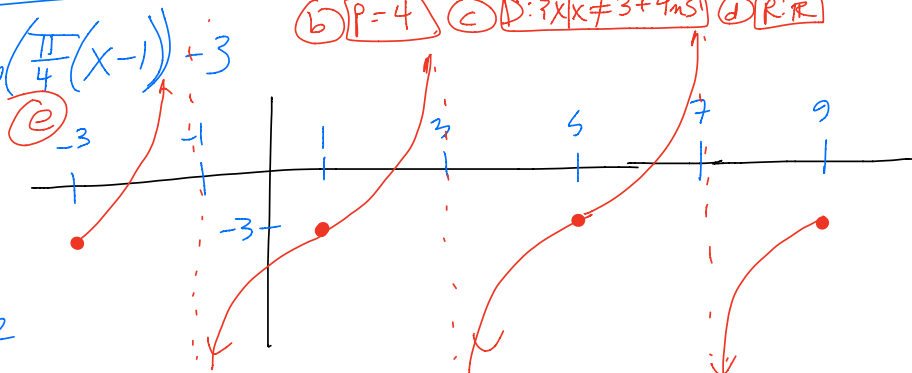
⑥ $P = 6$

⑦ $D: \{x | x \neq -2 + 6n\}$

⑧ $R: \mathbb{R}$

④ ③ $f(x) = 6\tan(\frac{\pi}{4}(x-1)) + 3$

$|A| = 6$
 $|B| = \frac{\pi}{4}$
 $C = \text{right } 1$
 $D = \text{down } 3$
 $P = \frac{\pi}{\pi/4} = 4, \frac{1}{2}P = 2$



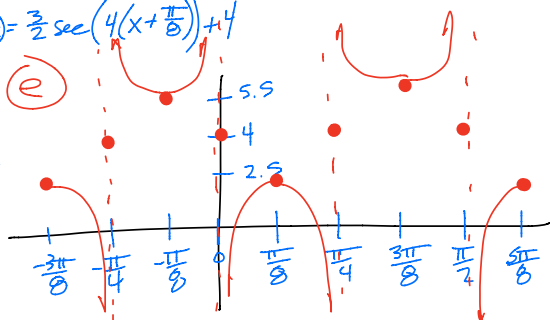
⑥ $P = 4$

⑦ $D: \{x | x \neq 1 + 4n\}$

⑧ $R: \mathbb{R}$

5) a) $f(x) = \frac{3}{2} \sec\left(4\left(x + \frac{\pi}{8}\right)\right) + 4$

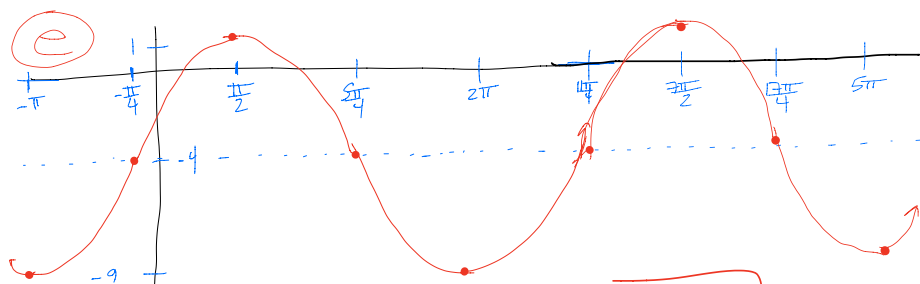
$|A| = \frac{3}{2}$
 $|B| = 4$
 $C = 4 + \frac{\pi}{8}$
 $D = 4$
 $P = \frac{2\pi}{4} = \frac{\pi}{2}$
 $\frac{1}{4}P = \frac{\pi}{8}$



b) $P = \frac{\pi}{2}$ c) $D: \{x | x \neq 0 + \frac{\pi}{4}n\}$ d) $R: (-\infty, 2.5] \cup [5.5, \infty)$

6) a) $f(x) = 5 \sin\left(\frac{2}{3}\left(x + \frac{\pi}{4}\right)\right) - 4$

$|A| = 5$
 $|B| = \frac{2}{3}$
 $C = 4 + \frac{\pi}{4}$
 $D = -4$
 $P = \frac{2\pi}{2/3} = 3\pi$
 $\frac{1}{4}P = \frac{3}{4}\pi$
 $R: [-4-5, -4+5]$
 $[-9, 1]$



b) $P = 3\pi$ c) $D: \mathbb{R}$ d) $R: [-9, 1]$