

MATH 1201 HWK QUIZ #2

1. SEC 3.5 #17. AS $x \rightarrow -2^+$, $f(x) \rightarrow -\infty$

2. SEC 3.5 #25. $h(x) = \frac{x}{x(x+4)}$ SIMPLIFYING $\frac{1}{x+4}$

VERTICAL ASYMPTOTE AT $x = -4$ FYI: HOLE AT $x = 0$

3. SEC 3.5 #75. $f(x) = \frac{x^2+x-6}{x-3}$

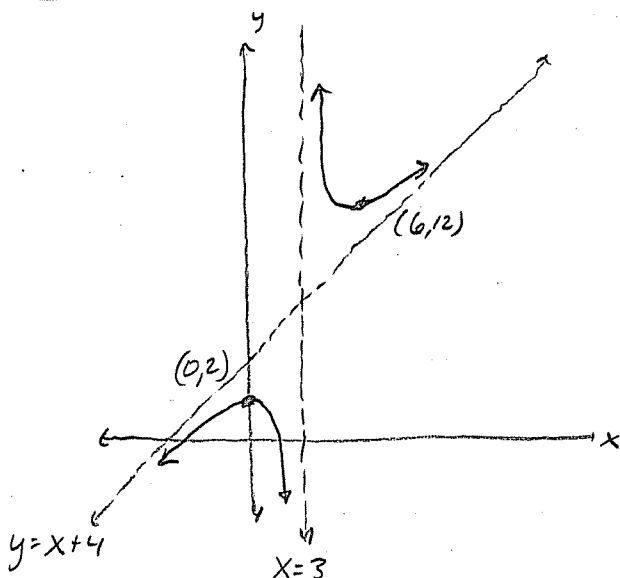
① VA $x = 3$

② SLANT ASYMPTOTE: $y = x + 4$

$$\begin{array}{r} x+4 \\ x-3 \overline{) x^2+x-6} \\ \underline{-x^2+3x} \\ 4x-6 \\ \underline{4x+12} \\ 6 \end{array}$$

③ PLOT POINTS

x	y
0	2
6	$\frac{34}{3} = 12$



4. SEC 9.1 #21.

$$\begin{cases} x+y-z = -2 \\ 2x-y+z = 5 \\ -x+2y+2z = 1 \end{cases} \rightarrow \begin{bmatrix} 1 & 1 & -1 & -2 \\ 2 & -1 & 1 & 5 \\ -1 & 2 & 2 & 1 \end{bmatrix} \rightarrow \begin{bmatrix} 1 & 1 & -1 & -2 \\ 0 & -3 & 3 & 9 \\ 0 & 3 & 1 & -1 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & -1 & -2 \\ 0 & -1 & 1 & 3 \\ 0 & 0 & 4 & 8 \end{bmatrix} \rightarrow \begin{cases} -y+z=3 \\ 4z=8 \rightarrow z=2 \end{cases} \rightarrow \begin{cases} -y+2=3 \\ y=-1 \end{cases} \rightarrow \begin{cases} x-1-2=-2 \\ x=1 \end{cases}$$

Solution $(1, -1, 2)$

5. SEC 9.2 #16.

$$\begin{cases} 3x+2y-z = 5 \\ x+2y-z = 1 \end{cases} \rightarrow \begin{bmatrix} 3 & 2 & -1 & 5 \\ 0 & -4 & 2 & 2 \end{bmatrix} \rightarrow \begin{cases} -4y+2z=2 \\ -2y+z=1 \end{cases}$$

$$\begin{cases} 3x+2(\frac{1}{2}z-\frac{1}{2})-z=5 \\ 3x+z-1-z=5 \end{cases} \rightarrow \begin{cases} 3x+z-1-z=5 \\ 3x=6 \\ x=2 \end{cases}$$

Solution $(2, \frac{1}{2}z-\frac{1}{2}, z)$
 or $(2, \frac{1}{2}t-\frac{1}{2}, t)$
 or $(2, y, 2y+1)$