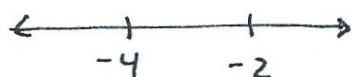
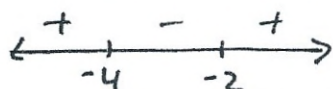


2.5 #4 $z^2 + 6z > -8$
 $z^2 + 6z + 8 > 0$
 $(z+2)(z+4) > 0$

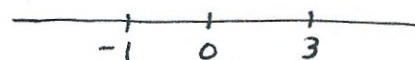


check $z = -5 \rightarrow (-3)(-1) \rightarrow \text{pos}$
 $z = -3 \rightarrow (-1)(1) \rightarrow \text{neg}$
 $z = -1 \rightarrow (1)(3) \rightarrow \text{pos}$



$(-\infty, -4) \cup (-2, \infty)$

2.5 #18 $x^3 - 2x^2 - 3x \leq 0$
 $x(x^2 - 2x - 3) \leq 0$
 $x(x-3)(x+1) \leq 0$



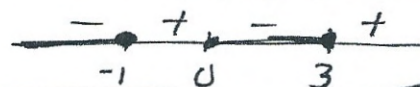
check

$$x = -2 \rightarrow (-2)(-5)(-1) \rightarrow \text{neg}$$

$$x = -\frac{1}{2} \rightarrow (-\frac{1}{2})(-\frac{7}{2})(\frac{1}{2}) \rightarrow \text{pos}$$

$$x = 1 \rightarrow (1)(-2)(2) \rightarrow \text{neg}$$

$$x = 4 \rightarrow (4)(1)(5) \rightarrow \text{pos}$$



$(-\infty, -1] \cup [0, 3]$

3.1 #16 $g(x) = \frac{x}{x^2 + x - 2}$
 $= \frac{x}{(x+2)(x-1)}$

Domain: $\{x \mid x \neq -2, x \neq 1\}$

3.1 #26 $f(x) = x^2 - 2x$

$$f(4) = 4^2 - 2 \cdot 4 = 16 - 8 = 8$$

$$f(-3) = (-3)^2 - 2(-3) = 9 + 6 = 15$$

$$f(2.7) = (2.7)^2 - 2(2.7) = 7.29 - 5.4 = 1.89$$

$$f(-4.9) = (-4.9)^2 - 2(-4.9) = 24.01 + 9.8 = 33.81$$

3.1 #36 $f(x) = 3x + 5$

$$f(p) = 3p + 5$$

$$f(-r) = 3(-r) + 5 = -3r + 5$$

$$\begin{aligned} f(m+3) &= 3(m+3) + 5 \\ &= 3m + 9 + 5 \\ &= 3m + 14 \end{aligned}$$

3.1 #56

$$\begin{aligned} P(x) &= .0991x^4 - 2.82x^3 + 23.5x^2 \\ &\quad - 41.8x + 34 \end{aligned}$$

a) In 2005

$$P(15) = 193.9 \rightarrow \underline{194 \text{ billion}}$$

b) In 2014

$$P(24) = 6462.1 \rightarrow \underline{6462 \text{ billion}}$$