

099 § 3.4 II #5 60, 62, 90, 92, 94

#s 59-64 Determine whether the lines are parallel, perpendicular, or neither.

(60)  $f(x) = 5x - 6$ ,  $g(x) = 5x + 2$

$$m_1 = 5, \quad m_2 = 5$$
$$m_1 = m_2 \Rightarrow \boxed{\text{parallel}}$$

(62)  $2x - y = -10 \Rightarrow -y = -2x - 10 \Rightarrow y = 2x + 10$   
 $2x + 4y = 2 \Rightarrow 4y = -2x + 2 \Rightarrow y = -\frac{1}{2}x + \frac{1}{2}$

$$m_1 = 2, \quad m_2 = -\frac{1}{2} \Rightarrow \text{perpendicular}$$

$$\rightarrow m_2 = -\frac{1}{m_1} \checkmark$$

(90) The slope of a line parallel to  $f(x) = x$   
 $m = 1$  ✓

$$\text{is } \boxed{m = 1}$$

(92) The slope of a line perpendicular to

$$f(x) = x \quad \text{is } m_{\perp} = -\frac{1}{1} = \boxed{-1 = m_{\perp}}$$

$m = 1$  ✓

(94) The slope of a line parallel to

$$-3x + 4y = 10 \quad \text{is}$$

$$4y = 3x + 10$$

$$y = \frac{3}{4}x + \frac{10}{4}$$

$$\Rightarrow \boxed{m = \frac{3}{4}}$$