

(Form B) Quiz 4B Fall 2006, Solution

#1)

$$y = -3x + -1$$

$$4x - (-3x - 1) = -6$$

$$4x + 3x + 1 = -6$$

$$7x = -7$$

$$x = -1$$

$$y = -3(-1) + -1 = 3 - 1 = 2$$

$$(-1, 2)$$

#2)

$$2x - 4y = 5$$

$$2(-x + 2y) = 9$$

$$2x - 4y = 5$$

$$-2x + 4y = 18$$

$$0 = 23$$

No Solution

#3)

$$x + y = 18$$

$$x - y = 6$$

$$2x = 24$$

$$x = 12$$

$$12 + y = 18$$

$$y = 6$$

#4)

let x = speed of Boat

y = speed of current

$$5(x + y) = 150$$

$$7.5(x - y) = 150$$

$$5x + 5y = 150 \quad (x + y = 30) \cdot 7.5$$

$$7.5x - 7.5y = 150 \quad [7.5x - 7.5y = 150]$$

$$7.5x + 7.5y = 225$$

$$7.5x - 7.5y = 150$$

$$15x = 375$$

$$x = 25 \text{ mph}$$

$$x + y = 30$$

$$25 + y = 30 \Rightarrow y = 5 \text{ mph}$$

FORMA Quiz 4A Fall 2006; Solution

1) $y = -2x - 1$

$$2x - (-2x - 1) = -3$$

$$2x + 2x + 1 = -3$$

$$4x = -4$$

$$\boxed{x = -1}$$

$$y = -2(-1) - 1 = +2 - 1 = 1$$

$$\boxed{(-1, 1)}$$

2)

$$-2 \begin{cases} 2x + y = 2 \\ 4x + 2y = 4 \end{cases}$$

$$-4x - 2y = -4$$

$$4x + 2y = 4$$

$$0 = 0$$

Many solutions

3) $\begin{cases} 2x - y = 5 \\ x + y = 16 \end{cases}$

$$3x = 21$$

$$\boxed{x = 7}$$

$$2(7) - y = 5$$

$$\begin{array}{r} 14 - y = 5 \\ -14 \quad -14 \end{array}$$

$$-y = -9$$

$$\boxed{y = 9}$$

#4

$$\begin{cases} x + y = 3500 \\ 0.08x + 0.09y = 294 \end{cases}$$

$$0.08x + 0.09y = 294$$

$$y = -x + 3500$$

$$0.08x + 0.09(-x + 3500) = 294$$

$$0.08x - 0.09x + 315 = 294$$

$$-0.01x = -21 \quad \boxed{x = 2100}$$

$$y = 3500 - 2100 = \boxed{1400}$$