

**A #37**

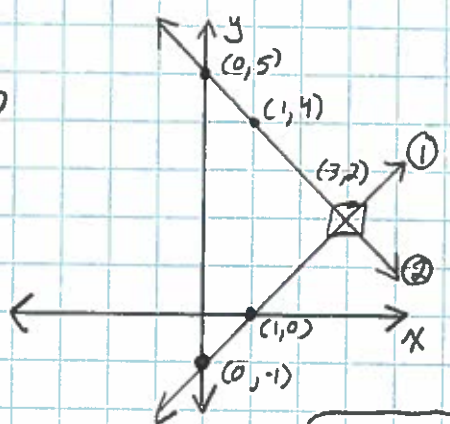
PI: p. 944 #1-3, 7-12

PII: p. 457 Quiz #1-4, 8-12

**Key**

PI 1.  $\begin{cases} y = x - 1 & \textcircled{1} & m = 1 & y\text{-int}(0, -1) \\ y = -x + 5 & \textcircled{2} & m = -1 & y\text{-int}(0, 5) \end{cases}$  2.  $\begin{cases} y = 3x + 12 & \textcircled{1} \\ y = -4x - 2 & \textcircled{2} \end{cases}$

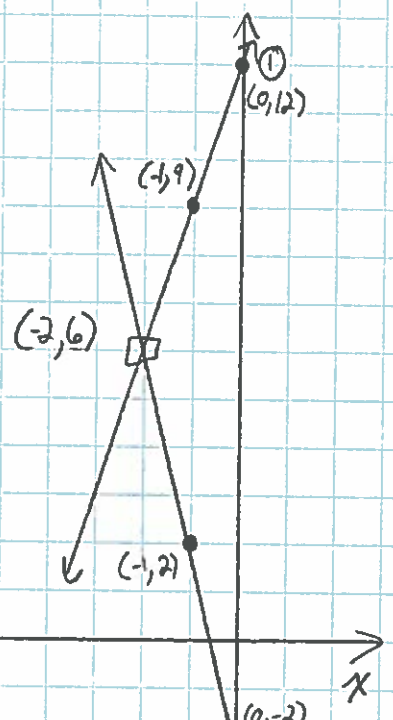
Graph #1-3



check:  $\textcircled{1} 2 = 3 - 1 \checkmark$   
 $\textcircled{2} 2 = -3 + 5 \checkmark$  **Solution: (3, 2)**

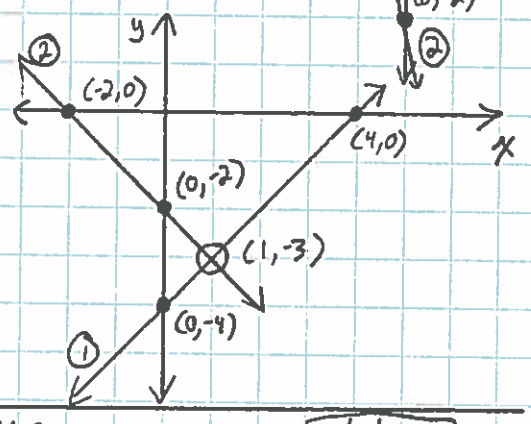
check:  $\textcircled{1} 6 = 3(-2) + 12$   
 $6 = -6 + 12 \checkmark$   
 $\textcircled{2} 6 = -4(-2) - 2$   
 $6 = 8 - 2 \checkmark$

**Solution: (-2, 6)**



3.  $\begin{cases} x - y = 4 & \textcircled{1} & x\text{-int: } \begin{matrix} y=0 \\ x=4 \end{matrix} (4, 0) & y\text{-int: } \begin{matrix} x=0 \\ y=-4 \end{matrix} (0, -4) \\ x + y = -2 & \textcircled{2} & x\text{-int: } \begin{matrix} y=0 \\ x=-2 \end{matrix} (-2, 0) & y\text{-int: } \begin{matrix} x=0 \\ y=-2 \end{matrix} (0, -2) \end{cases}$

check:  $\textcircled{1} 1 - (-3) = 4 \checkmark$   
 $\textcircled{2} 1 + (-3) = -2 \checkmark$  **Solution: (1, -3)**



Substitution #7-12

7.  $\begin{cases} y = 2x + 6 & \textcircled{1} \\ x = y - 3 & \textcircled{2} \end{cases}$   
 step 1:  $\checkmark$  step 2:  $\textcircled{2} x = 2x + 6 - 3$   
 $x = -3$   
 step 3:  $\textcircled{1} y = 2(-3) + 6$   
 $y = -6 + 6$   
 $y = 0$

step 4:  $\textcircled{1} 0 = 2(-3) + 6 \checkmark$   
 check  $\textcircled{2} -3 = 0 - 3 \checkmark$  **Solution: (-3, 0)**

8.  $\begin{cases} y = 3x + 5 & \textcircled{1} \\ x + y = -1 & \textcircled{2} \end{cases}$   
 step 1:  $\checkmark$  step 2:  $\textcircled{2} x + 3x + 5 = -1$   
 $4x = -6$   
 $x = -\frac{3}{2}$

step 3:  $\textcircled{1} y = 3(-\frac{3}{2}) + 5$   
 $y = -\frac{9}{2} + \frac{10}{2}$   
 $y = \frac{1}{2}$   
 step 4:  $\textcircled{1} \frac{1}{2} = 3(-\frac{3}{2}) + 5$   
 check  $\frac{1}{2} = -\frac{9}{2} + \frac{10}{2} \checkmark$   
 $\textcircled{2} -\frac{3}{2} + \frac{1}{2} = -1$   
 $-\frac{2}{2} = -1 \checkmark$

**Solution: (-\frac{3}{2}, \frac{1}{2})**

9.  $\begin{cases} x = 2y - 5 & \textcircled{1} \\ 2x - y = 11 & \textcircled{2} \end{cases}$   
 step 1:  $\checkmark$  step 2:  $\textcircled{2} 2(2y - 5) - y = 11$   
 $4y - 10 - y = 11$   
 $3y = 21$   
 $y = 7$

step 3:  $\textcircled{1} x = 2(7) - 5$   
 $x = 14 - 5$   
 $x = 9$   
 step 4:  $\textcircled{1} 9 = 2(7) - 5$   
 check  $9 = 14 - 5 \checkmark$   
 $\textcircled{2} 2(9) - 7 = 11$   
 $18 - 7 = 11 \checkmark$

**Solution: (9, 7)**

# A#37 Continued

Key

Pt I: p. 944 #10-12 Pt II: p. 457 Quiz #1-4, 8-12

10.  $\begin{cases} 2x - y = 0 & \textcircled{1} \\ x + 3y = -56 & \textcircled{2} \end{cases}$

Step 2:  $\textcircled{1} 2(-3y - 56) - y = 0$  Step 3:  $\textcircled{2} x = -3(-16) - 56$

$$-6y - 112 - y = 0 \quad x = 48 + (-56)$$

$$-7y = 112 \quad x = -8$$

Step 1:  $\textcircled{2} x = -3y - 56$

Step 4:  $\textcircled{1} 2(-8) - (-16) = 0$   
 Check  $-16 + 16 = 0 \checkmark$   
 $\textcircled{2} -8 + 3(-16) = -56$   
 $-8 + (-48) = -56 \checkmark$

Solution:  $(-8, -16)$

11.  $\begin{cases} 1.5x - 2.5y = 22 & \textcircled{1} \\ x - y = 10 & \textcircled{2} \end{cases}$

Step 2:  $\textcircled{1} 1.5(y + 10) - 2.5y = 22$  Step 3:  $\textcircled{2} x = -7 + 10$

$$1.5y + 15 - 2.5y = 22 \quad x = 3$$

Step 1:  $\textcircled{2} x = y + 10$

Step 4:  $\textcircled{1} 1.5(3) - 2.5(-7) = 22$   
 Check  $4.5 + 17.5 = 22 \checkmark$   
 $\textcircled{2} 3 - (-7) = 10 \checkmark$

Solution:  $(3, -7)$

12.  $\begin{cases} \frac{1}{2}x + \frac{3}{4}y = 5 & \textcircled{1} \\ x - \frac{1}{2}y = 6 & \textcircled{2} \end{cases}$

Step 2:  $\textcircled{1} \frac{1}{2}(\frac{1}{2}y + 6) + \frac{3}{4}y = 5$  Step 3:  $\textcircled{2} x = \frac{1}{2}(2) + 6$  Step 4:  $\textcircled{1} \frac{1}{2}(\frac{7}{2}) + \frac{3}{4}(\frac{7}{2}) = 5$

$$\frac{1}{4}y + 3 + \frac{3}{4}y = 5 \quad x = 1 + 6 \quad \text{Check } \frac{7}{2} + \frac{3}{2} = \frac{10}{2} = 5 \checkmark$$

Step 1:  $\textcircled{2} x = \frac{1}{2}y + 6$

$$y = 2 \quad x = 7 \quad \textcircled{2} 7 - \frac{1}{2}(2) = 6$$

$$7 - 1 = 6 \checkmark$$

Solution:  $(7, 2)$

Pt II: P. 457 Quiz #1-4, 8-12

1.  $\begin{cases} x + y = 4 & \textcircled{1} \\ -3x + y = -8 & \textcircled{2} \end{cases}$

Step 1:  $x + y = 4$  Step 3:  $\textcircled{1} 3 + y = 4$  Step 4:  $\textcircled{1} 3 + 1 = 4 \checkmark$

$$\xrightarrow{x(-1)} 3x - y = 8 \quad y = 1 \quad \textcircled{2} -3(3) + 1 = -8$$

$$-9 + 1 = -8 \checkmark$$

Step 2:  $4x = 12$

Solution:  $(3, 1)$

$x = 3$

2.  $\begin{cases} 2x - y = 2 & \textcircled{1} \\ 6x - y = -2 & \textcircled{2} \end{cases}$

Step 1:  $\xrightarrow{x(-2)} -2x + y = -2$  Step 3:  $\textcircled{1} 2(-1) - y = 2$  Step 4:  $\textcircled{1} 2(-1) - (-4) = 2$

$$\longrightarrow 6x - y = -2 \quad -2 - y = 2 \quad \text{Check } -2 + 4 = 2 \checkmark$$

$$\text{Step 2: } 4x = -4 \quad -y = 4 \quad \textcircled{2} 6(-1) - (-4) = -2$$

$$x = -1 \quad y = -4 \quad -6 + 4 = -2 \checkmark$$

Solution:  $(-1, -4)$

3.  $\begin{cases} x + y = 5 & \textcircled{1} \\ -x + y = -3 & \textcircled{2} \end{cases}$

Step 1:  $\checkmark$  Step 3:  $\textcircled{1} x + 1 = 5$  Step 4:  $\textcircled{1} 4 + 1 = 5 \checkmark$

$$x = 4 \quad \text{Check } \textcircled{2} -4 + 1 = -3 \checkmark$$

Step 2:  $2y = 2$

Solution:  $(4, 1)$

$y = 1$

A#37 Continued

Key

Pt II: p. 457 Quiz # 4, 8-12

4. 
$$\begin{cases} x+3y = -10 & \textcircled{1} \\ -x+5y = -30 & \textcircled{2} \end{cases}$$

step 1: ✓

step 3: 
$$\begin{aligned} \textcircled{1} \quad x+3(-5) &= -10 \\ x+(-15) &= -10 \\ x &= 5 \end{aligned}$$

step 4: 
$$\begin{aligned} \textcircled{1} \quad 5+3(-5) &= -10 \\ \text{check} \quad 5+(-15) &= -10 \checkmark \\ \textcircled{2} \quad -5+5(-5) &= -30 \\ -5+(-25) &= -30 \checkmark \end{aligned}$$

step 2: 
$$\begin{aligned} 8y &= -40 \\ y &= -5 \end{aligned}$$

**Solution: (5, -5)**

8. 
$$\begin{cases} x+3y = 1 & \textcircled{1} \\ 5x+6y = 14 & \textcircled{2} \end{cases}$$

step 1: 
$$\begin{aligned} x(-2) &\rightarrow -2x+(-6y) = -2 \\ \text{step 3: } \textcircled{1} \quad 4+3y &= 1 \\ 3y &= -3 \\ y &= -1 \end{aligned}$$

step 2: 
$$\begin{aligned} 3x &= 12 \\ x &= 4 \end{aligned}$$

step 4: 
$$\begin{aligned} \textcircled{1} \quad 4+3(-1) &= 1 \\ \text{check} \quad 4+(-3) &= 1 \checkmark \\ \textcircled{2} \quad 5(4)+6(-1) &= 14 \\ 20+(-6) &= 14 \checkmark \end{aligned}$$

**Solution: (4, -1)**

9. 
$$\begin{cases} 3x+y = 21 & \textcircled{1} \\ x+y = 1 & \textcircled{2} \end{cases}$$

step 1: 
$$\begin{aligned} 3x+y &= 21 \\ \text{step 3: } \textcircled{2} \quad 10+y &= 1 \\ y &= -9 \end{aligned}$$

step 2: 
$$\begin{aligned} 2x &= 20 \\ x &= 10 \end{aligned}$$

step 4: 
$$\begin{aligned} \textcircled{1} \quad 3(10)+(-9) &= 21 \\ \text{check} \quad 30+(-9) &= 21 \checkmark \\ \textcircled{2} \quad 10+(-9) &= 1 \checkmark \end{aligned}$$

**Solution: (10, -9)**

10. 
$$\begin{cases} 2x-3y = -5 & \textcircled{1} \\ 5x+2y = 16 & \textcircled{2} \end{cases}$$

step 1: 
$$\begin{aligned} 2x-3y &= -5 \\ \text{step 3: } \textcircled{2} \quad 5(2)+2y &= 16 \\ 10+2y &= 16 \\ 2y &= 6 \\ y &= 3 \end{aligned}$$

step 2: 
$$\begin{aligned} 17x &= 38 \\ x &= 2 \end{aligned}$$

step 4: 
$$\begin{aligned} \textcircled{1} \quad 2(2)-3(3) &= -5 \\ \text{check} \quad 4-9 &= -5 \checkmark \\ \textcircled{2} \quad 5(2)+2(3) &= 16 \\ 10+6 &= 16 \checkmark \end{aligned}$$

**Solution: (2, 3)**

11. 
$$\begin{cases} 7x+2y = 13 & \textcircled{1} \\ 4x+3y = 13 & \textcircled{2} \end{cases}$$

step 1: 
$$\begin{aligned} 7x+2y &= 13 \\ \text{step 3: } \textcircled{1} \quad 7(1)+2y &= 13 \\ 7+2y &= 13 \\ 2y &= 6 \\ y &= 3 \end{aligned}$$

step 2: 
$$\begin{aligned} 13x &= 13 \\ x &= 1 \end{aligned}$$

step 4: 
$$\begin{aligned} \textcircled{1} \quad 7(1)+2(3) &= 13 \\ \text{check} \quad 7+6 &= 13 \checkmark \\ \textcircled{2} \quad 4(1)+3(3) &= 13 \\ 4+9 &= 13 \checkmark \end{aligned}$$

**Solution: (1, 3)**

12. 
$$\begin{cases} \frac{1}{3}x+5y = -3 & \textcircled{1} \\ -\frac{2}{3}x+6y = -10 & \textcircled{2} \end{cases}$$

step 1: 
$$\begin{aligned} \frac{1}{3}x+5y &= -3 \\ \text{step 3: } \textcircled{1} \quad \frac{1}{3}x+5(-1) &= -3 \\ \frac{1}{3}x+(-5) &= -3 \\ \frac{1}{3}x &= 2 \\ x &= 6 \end{aligned}$$

step 2: 
$$\begin{aligned} 16y &= -16 \\ y &= -1 \end{aligned}$$

step 4: 
$$\begin{aligned} \textcircled{1} \quad \frac{1}{3}(6)+5(-1) &= -3 \\ \text{check} \quad 2+(-5) &= -3 \checkmark \\ \textcircled{2} \quad -\frac{2}{3}(6)+6(-1) &= -10 \\ -4+(-6) &= -10 \checkmark \end{aligned}$$

**Solution: (6, -1)**