

# Chapter 7 Review HW (updated 2017)

CH7 Review HW  
page 475  
#'s 5-23 (odd)  
WP's #'s 11 and 24  
#'s 25-30

## 7 CHAPTER REVIEW

Chapter Review 475

### 7.1 Solve Linear Systems by Graphing

pp. 427-433

#### EXERCISES

Solve the linear system by graphing. Check your solution.

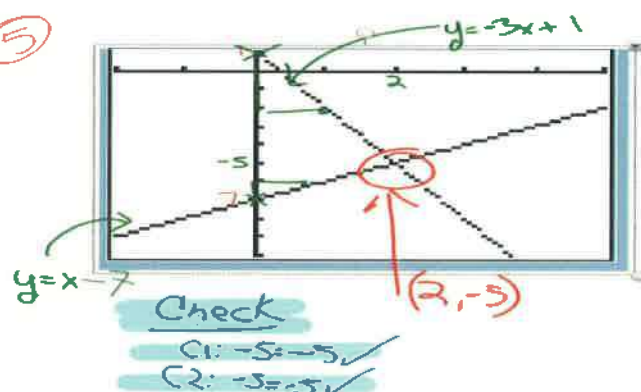
5.  $y = -3x + 1$   
 $y = x - 7$

$(2, -5)$

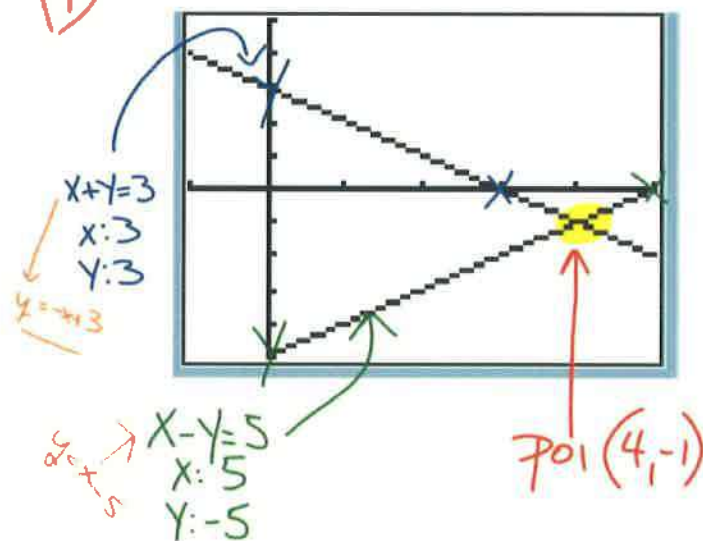
7.  $x + y = 3$   
 $x - y = 5$

$(4, -1)$

5



7



# Chapter 7 Review HW (updated 2017)

## 7.2 Solve Linear Systems by Substitution

### EXERCISES

Solve the linear system using substitution.

$$9. \begin{cases} x + 4y = 9 \\ x - y = 4 \end{cases}$$

$$\begin{array}{r} x + 4y = 9 \\ x - y = 4 \\ \hline +y +4 \end{array}$$

① Isolate  $x$   
 $\rightarrow x = y + 4$

③ FIND  $x$   
 $x = 1 + 4$   
 $x = 5$

② substitute

$$\begin{aligned} (y + 4) + 4y &= 9 \\ 5y + 4 &= 9 \\ -4 &-4 \end{aligned}$$

$$\begin{aligned} 5y &= 5 \\ \frac{5y}{5} &= \frac{5}{5} \end{aligned} \quad y = 1$$

11. **ART** Kara spends \$16 on tubes of paint and disposable brushes for an art project. Each tube of paint costs \$3, and each disposable brush costs \$.50. Kara purchases twice as many brushes as tubes of paint. Find the number of brushes and the number of tubes of paint that she purchases.

④ Check in orig. EQ

$$C: 5 + 4(1) = 9$$
$$9 = 9 \checkmark$$

$$C: 5 - 1 = 4$$
$$4 = 4 \checkmark$$

KI: • paint \$3 • Spent \$16  
• brush \$.50 • bought twice as many brushes

$x = \#$  paints

$y = \#$  brushes

EQ's:  $3x + .50y = 16$

$$2x = y$$

Solve (substitution is the easiest method)

$$3x + .50(2x) = 16$$

$$4x = 16$$

$$x = 4$$

FIND  $y$ :  $y = 2x = 2(4)$

$$y = 8$$

Kara bought 4 paints and 8 brushes

# Chapter 7 Review HW (updated 2017)

## 7.3 Solve Linear Systems by Adding or Subtracting

### EXERCISES

Solve the linear system using elimination.

$$\begin{array}{r} \textcircled{1} \\ 13. \quad 4x - 5y = 14 \\ \quad -4x + y = -6 \\ \hline -4y = 8 \\ \quad -4y = -4 \\ \hline y = -2 \end{array}$$

② FIND X:

$$\begin{array}{r} 4x - 5(-2) = 14 \\ 4x + 10 = 14 \\ \quad -10 \quad -10 \\ \hline 4x = 4 \\ \quad 4 \quad 4 \\ \hline x = 1 \end{array}$$

③ Check:  $C: 4(1) - 5(-2) = 14$   
 $14 = 14 \checkmark$   
 $C: -4(1) + (-2) = -6$   
 $-6 = -6 \checkmark$

$$\begin{array}{r} 15. \quad 9x - 2y = 34 \\ -1(5x - 2y - 10) \rightarrow -5x + 2y = -10 \\ \hline 4x = 24 \\ \quad 4 \quad 4 \\ \hline x = 6 \end{array}$$

FIND Y:

$$\begin{array}{r} 9(6) - 2y = 34 \\ -54 - 2y = -20 \\ \quad -2y = -20 \\ \quad -2 \quad -2 \\ \hline y = 10 \end{array}$$

$C: 9(6) - 2(10) = 34$   
 $34 = 34 \checkmark$   
 $C: 5(6) - 2(10) = 10$   
 $10 = 10 \checkmark$

$$\begin{array}{l} 17. \quad 4y = 11 - 3x \\ \quad 3x + 2y = -5 \end{array}$$

① PUT IN STANDARD FORM

$$\begin{array}{r} \textcircled{2} \quad 3x + 4y = 11 \\ -1(3x + 2y = -5) \rightarrow -3x - 2y = -5 \\ \hline 2y = 16 \\ \quad 2 \quad 2 \\ \hline y = 8 \end{array}$$

③ FIND X:

$$\begin{array}{r} 3x + 2(8) = -5 \\ \quad -16 \quad -16 \\ \hline 3x = -21 \\ \quad 3 \quad 3 \\ \hline x = -7 \end{array}$$

④ Check:  $C: 4(8) = 11 - 3(-7)$   
 $32 = 32 \checkmark$

$C: 3(-7) + 2(8) = -5$   
 $-5 = -5$

# Chapter 7 Review HW (updated 2017)

## 7.4 Solve Linear Systems by Multiplying First

### EXERCISES

Solve the linear system using elimination.

19.  $\begin{cases} x + 6y = 28 \\ 2x - 3y = -19 \end{cases}$

$$\begin{array}{r} (x + 6y = 28) \times -2 \longrightarrow -2x - 12y = -56 \\ 2x - 3y = -19 \end{array}$$

$$\begin{array}{r} -2x - 12y = -56 \\ 2x - 3y = -19 \\ \hline -15y = -75 \end{array}$$

$$y = 5$$

FIND X:

$$\begin{array}{r} x + 6(5) = 28 \\ x + 30 = 28 \\ \hline x = -2 \end{array}$$

$$\begin{aligned} C: -2 + 6(5) &= 28 \\ 28 &= 28 \checkmark \end{aligned}$$

$$C: 8(4) - 7(5) = -3$$

$$-3 = -3 \checkmark$$

$$C: 2(-2) - 3(5) = -19$$

$$-19 = -19 \checkmark$$

$$C: 6(4) - 5(5) = -1$$

$$-1 = -1 \checkmark$$

21.  $\begin{cases} 8x - 7y = -3 \\ 6x - 5y = -1 \end{cases}$

$$\begin{array}{r} 8x - 7y = -3 \\ 6x - 5y = -1 \\ \hline -2y = -10 \end{array}$$

$$y = 5$$

FIND X:

$$8x - 7(5) = -3$$

$$8x - 35 = -3$$

$$+35 \quad +35$$

$$\frac{8x}{8} = \frac{32}{8} \quad x = 4$$

23.  $\begin{cases} 11x = 2y - 1 \\ 3y = 10 + 8x \end{cases}$

↓ PUT IN STD FORM

$$\begin{cases} 11x - 2y = -1 \\ -8x + 3y = 10 \end{cases}$$

$$\begin{array}{r} 11x - 2y = -1 \\ -8x + 3y = 10 \\ \hline 17y = 102 \end{array}$$

$$\frac{17y}{17} = \frac{102}{17}$$

$$y = 6$$

FIND X:

$$11x = 2(6) - 1$$

$$\frac{11x}{11} = \frac{11}{11} \quad x = 1$$

$$C: 11(1) = 2(6) - 1$$

$$11 = 11 \checkmark$$

$$C: 3(6) = 10 + 8(1)$$

$$18 = 18 \checkmark$$

## Chapter 7 Review HW (updated 2017)

24. **CAR MAINTENANCE** You pay \$24.50 for 10 gallons of gasoline and 1 quart of oil at a gas station. Your friend pays \$22 for 8 gallons of the same gasoline and 2 quarts of the same oil. Find the cost of 1 quart of oil.

KI: You PAY \$24.50 10 gal gas 1 qt oil  
FRIEND PAYS \$22 8 gal gas 2 qt oil

$x = \text{Cost of gas (\$/gal)}$   
 $y = \text{Cost of oil (\$/qt)}$

EQ's:  $(10x + 1y = \$24.50) \times -2 \rightarrow -20x - 2y = -49$   
 $8x + 2y = \$22 \rightarrow 8x + 2y = 22$

$$\begin{array}{r} -20x - 2y = -49 \\ 8x + 2y = 22 \\ \hline -12x = -27 \\ -12x = -27 \\ \hline -12x = -27 \\ -12x = -27 \end{array}$$

FIND Y:

$$8(2.25) + 2y = 22$$

$$18 + 2y = 22$$

$$\begin{array}{r} 18 + 2y = 22 \\ -18 \quad -18 \\ \hline 2y = 4 \\ \frac{2y}{2} = \frac{4}{2} \end{array}$$

$$y = \$2$$

Cost of gas is \$2.25/GAL  
and oil is \$2/QT

# Chapter 7 Review HW (updated 2017)

## 7.5 Solve Special Types of Linear Systems

### EXERCISES

Tell whether the linear system has one solution, no solution, or infinitely many solutions. Explain.

25.  $\begin{cases} x - 2y = 3 \\ 1.5x - 3y = 0 \end{cases}$

$$\begin{aligned} 1.5(2y-3) - 3y &= 0 \\ 3y - 4.5 - 3y &= 0 \\ -4.5 &\neq 0 \end{aligned}$$

25) NO SOLUTION

26.  $\begin{cases} x + y = 8 \\ x + 11 = y \end{cases}$

$$\begin{aligned} -x + y &= 8 \\ x - y &= -8 \\ \hline 0 &= 0 \end{aligned}$$

INFINITE SOLUTIONS

27.  $\begin{cases} 4x - 2y = 6 \\ 4x - 2y = 10 \end{cases}$

$$\begin{aligned} 4x - 2y &= 6 \\ -4x - 2y &= -10 \\ \hline 0 &\neq -4 \end{aligned}$$

NO SOLUTION



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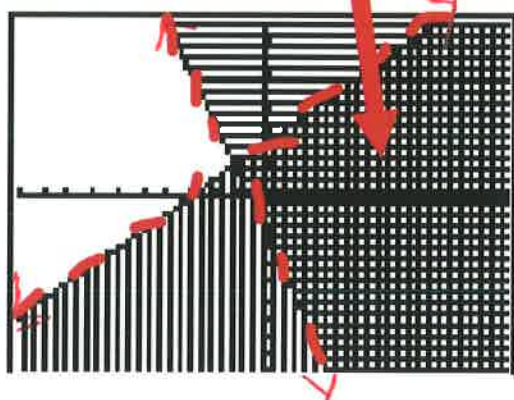
## 7.6 Solve Systems of Linear Inequalities

pp. 466-472

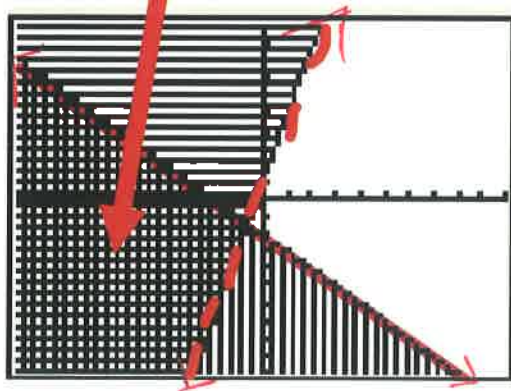
### EXERCISES

Graph the system of linear inequalities.

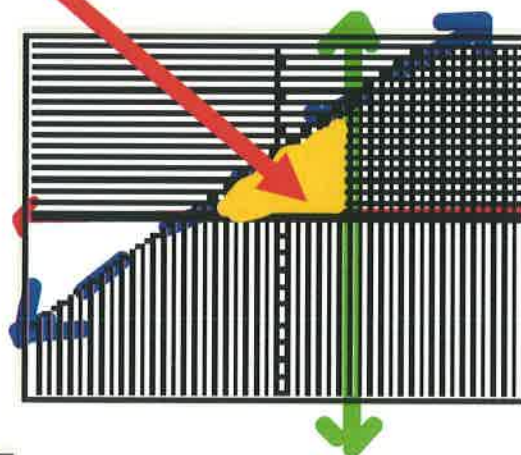
28.  $y < x + 3$   
 $y > -3x - 2$



29.  $y \leq -x - 2$   
 $y > 4x + 1$



30.  $y \geq 0$  (red dot)  
 $x \leq 2$  (green dot)  
 $y < x + 4$  (blue dot)



## Chapter 7 Review HW (updated 2017)

# REVIEW SYSTEMS

① GRAPHING - Solution is POI.

② Substitution - USE WHEN IT IS EASY TO  
ISOLATE 1 VARIABLE. EX:  $x = y + 1$   
 $2x + 4y = 10$  } Substitute INTO OTHER EQ

### ③ ELIMINATION

(A) ADDITION — 1 VAR HAS OPPOSITE COEF Ex  $\begin{cases} 2x + y = 10 \\ -2x - 4y = 100 \end{cases}$

(B) SUBTRACTION — 1 VAR HAS SAME COEF  $\begin{cases} 2x + y = 10 \\ 2x - 5y = 1 \end{cases} \xrightarrow{-} \begin{cases} 2x + y = 10 \\ -2x + 5y = -1 \end{cases}$

③ MULT. — MULT 1 OR BOTH EQ'S  
SO THAT 1 VARIABLE HAS OPPOSITE COEFF'S.



# Additional Practice Problems

Classwork: CH7 Review WP page 479 #28 and  
page 475 #'s 6, 8, 10, 14, 20, 22

WP pg 479 #28 PRACTICE WP

① KE

<u>CARRIE</u>	<u>DAVE</u>
150 miles	120 miles
\$215	\$176

① DEFINE VAR

X = TRUCK \$ RENTAL  
Y = \$ PER MILE

③ SYSTEM EQ

$$C: X + 150Y = 215$$

$$D: X + 120Y = 176$$

② SOLVE

$$\begin{array}{r} X + 150Y = 215 \\ -X - 120Y = -176 \\ \hline \end{array}$$

$$\frac{30Y}{30} = \frac{39}{30}$$

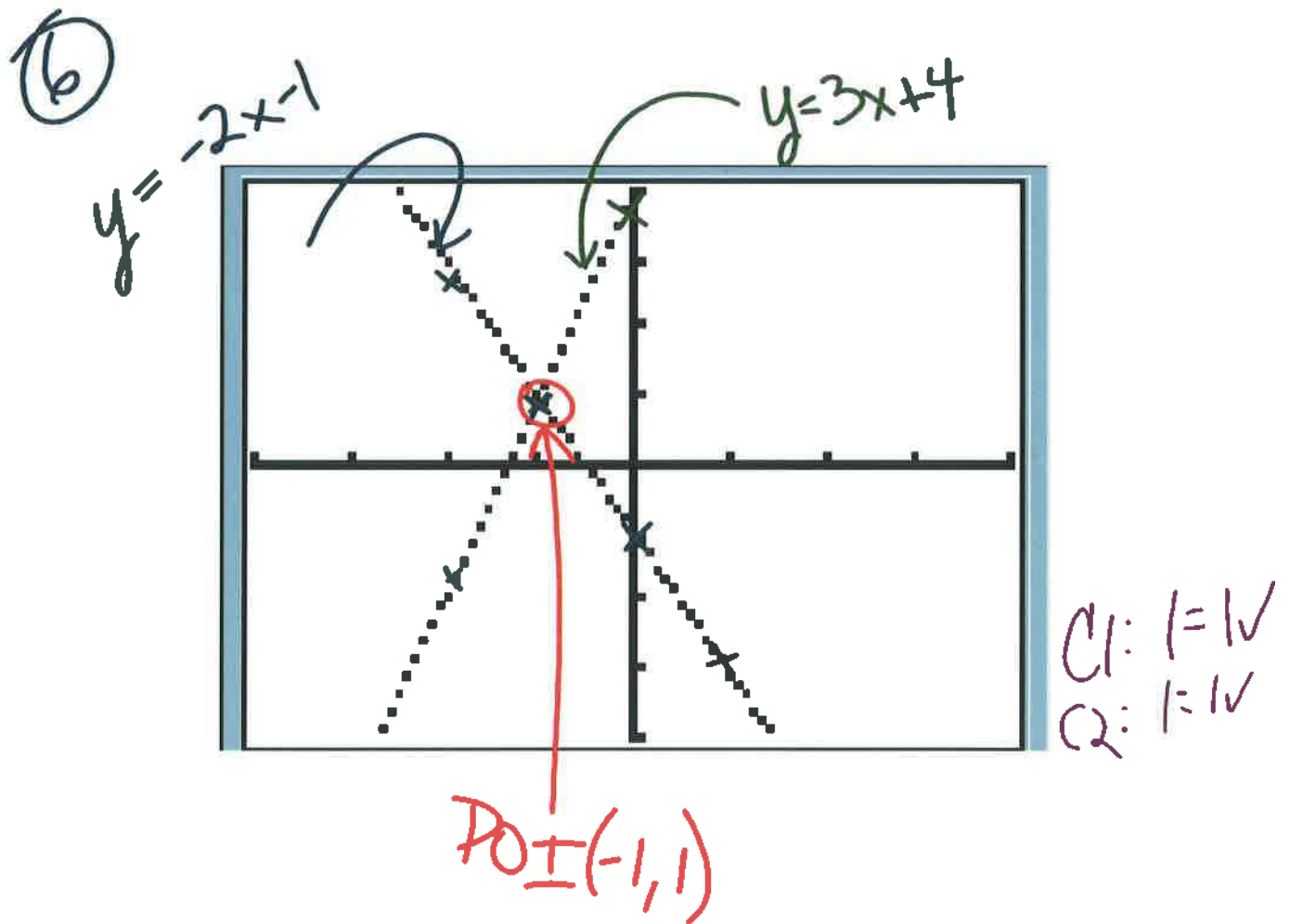
$$Y = 1.3$$

$$\begin{array}{l} X + 150(1.3) = \\ \hline X = 20 \end{array}$$

② ANSWER

\$20 FOR THE TRUCK  
AND \$1.30 per mile

## Additional Practice Problems



# Additional Practice Problems

## 7.2 Solve Linear Systems by Substitution

### EXERCISES

Solve the linear system using substitution.

8.  $y = 2x - 7$   
 $x + 2y = 1$

$$\begin{aligned} & \checkmark x + 2(2x - 7) = 1 \\ & x + 4x - 14 = 1 \\ & 5x = 15 \\ & \textcircled{x = 3} \\ & y = 2(3) - 7 \quad \textcircled{y = -1} \end{aligned}$$

9.  $2x + y = -15$   
 $x + 5y = 6$

$$\begin{aligned} & \rightarrow y = -5x - 15 \\ & 2x + (5x + 6) = -15 \\ & 7x = -21 \\ & \textcircled{x = -3} \\ & y = 5(-3) + 6 \quad \textcircled{y = -9} \end{aligned}$$

# Additional Practice Problems

14.  $\begin{cases} x + 7y = 12 \\ 2x + 7y = 18 \end{cases}$   $\xrightarrow{x-1}$   $\begin{array}{r} x + 7y = 12 \\ 2x + 7y = 18 \\ \hline -x = -6 \end{array}$   $\downarrow$

$x = -2$

$y = 2$

22.  $\begin{cases} 5x - 3y = 2 \\ 3x + 2y = 11 \end{cases}$

$\downarrow$

$\begin{array}{r} 5x - 3y = 2 \\ 3x + 2y = 11 \end{array}$

20.  $\begin{cases} 3x - 2y = 7 \\ -4x + 7y = 8 \end{cases}$   $\begin{array}{l} \times 4 \rightarrow 12x - 8y = 28 \\ \times 3 \rightarrow -12x + 21y = 24 \end{array}$   $\downarrow$

$\begin{array}{r} 12x - 8y = 28 \\ -12x + 21y = 24 \\ \hline 13y = 52 \end{array}$   $\downarrow$

$y = 4$

$3x - 5(-4) = -7$

$3x + 20 = -7$

$3x = -27$

$x = -9$

$(-9, 4)$