

Openers #9

Name: Key

Each day when you come into class, there will be a problem projected for you to complete. Find the appropriate box to complete the problem in and work on it when you arrive.

<p>Date: ___ / ___ / ___</p> $\frac{3x = 4y - 20}{3}$ $x = \frac{4y - 20}{3}$ $x = \frac{4(2) - 20}{3}$ $x = \frac{8 - 20}{3}$ $x = \frac{-12}{3} = -4$	<p>9-1</p> <p>Use the method of <u>substitution</u> to solve the system.</p> <p>1. $3x - 4y + 20 = 0$ $3x + 2y + 8 = 0$</p> <p>2. $4x - 5y = 2$ $8x - 10y = -5$</p> <p>3. $x - 5y = 2 \rightarrow x = 5y + 2$ $3x - 15y = 6$</p> <p>$3(\frac{4}{3}y - \frac{20}{3}) + 2y = -8$ $4y - 20 + 2y = -8$ $6y = 12$ $y = 2$ <u>* (-4, 2)</u></p> <p>$8(\frac{5}{4}y + \frac{1}{2}) - 10y = -5$ $10y + 4 - 10y = -5$ $4 = -5$ <u>* \emptyset</u></p> <p>$3(5y + 2) - 15y = 6$ $15y + 6 - 15y = 6$ $6 = 6$ <u>* All Reals</u></p>
<p>Date: ___ / ___ / ___</p> <p><u>* (-4, 2)</u> <u>Consistent</u></p>	<p>9-2</p> <p>Use the method of <u>elimination</u> to solve the system.</p> <p>1. $3x - 4y + 20 = 0$ $3x + 2y + 8 = 0$</p> <p>2. $(4x - 5y = 2) \cdot 2$ $8x - 10y = -5$</p> <p>3. $(x - 5y = 2) \cdot 3$ $3x - 15y = 6$</p> <p>$-6y + 12 = 0$ $-6y = -12$ $y = 2$ $3x - 4(2) = -20$ $3x - 8 = -20$ $3x = -12$ <u>x = -4</u></p> <p>$0 \neq -9$ <u>* \emptyset</u> <u>inconsistent</u></p> <p>$0 = 0$ <u>* All Reals</u> <u>Consistent & dependent</u></p>

Date:

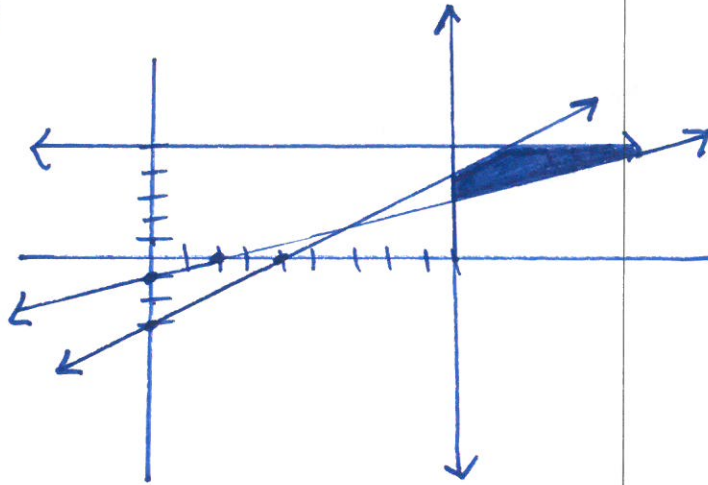
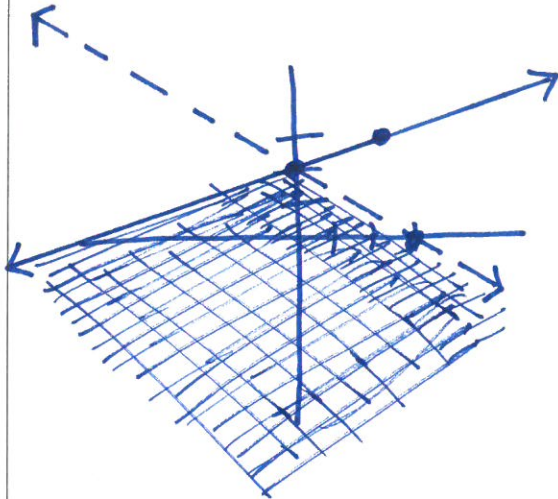
___ / ___ / ___

9-3

Sketch the graph of the system of inequalities.

1. $2y - x \leq 4 \rightarrow y \leq 2 + \frac{1}{2}x$
 $3y + 2x < 6 \rightarrow y < 2 - \frac{2}{3}x$

2. $3x - 4y \geq 12 \rightarrow y \leq \frac{3}{4}x - 3$
 $x - 2y \leq 2 \rightarrow y \geq \frac{1}{2}x - 1$
 $x \geq 9$
 $y \leq 5$



Date:

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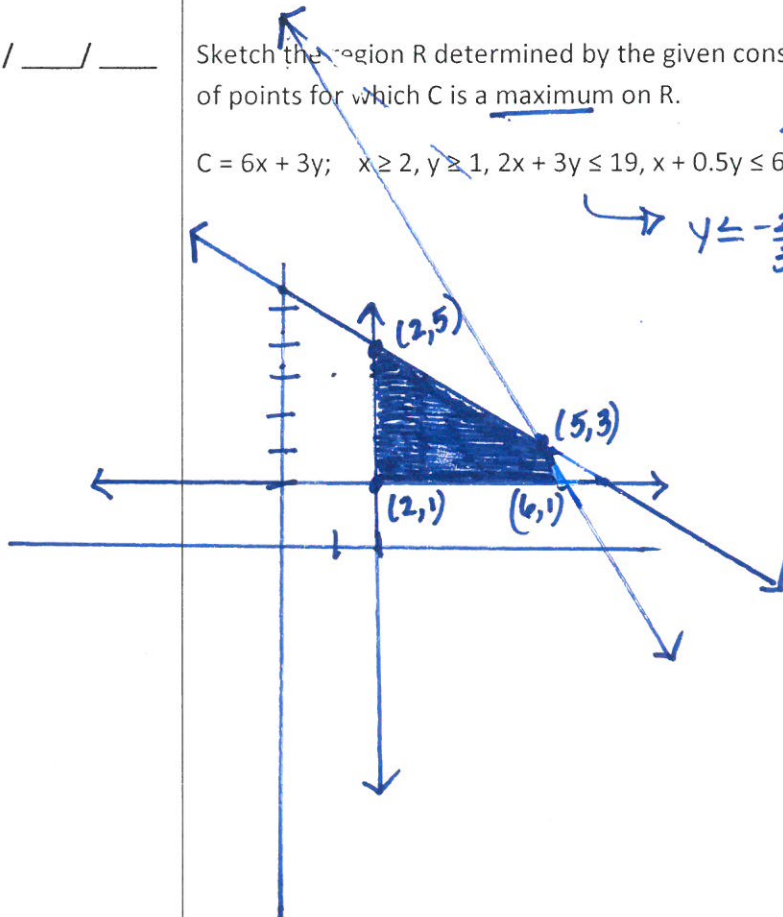
9-4

Sketch the region R determined by the given constraints, and label its vertices. Describe the set of points for which C is a maximum on R.

$C = 6x + 3y$; $x \geq 2$, $y \geq 1$, $2x + 3y \leq 19$, $x + 0.5y \leq 6.5$

$\rightarrow y \leq -2x + 13$

$\rightarrow y \leq -\frac{2}{3}x + \frac{19}{3}$



$C = 6x + 3y$

x, y	C
2, 1	15
2, 5	27
5, 3	39 *
6, 1	39 *

Date:

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9-5

Use matrices to solve the system.

1. $2x - 3y + z = 2$

$$3x + 2y - z = -5$$

$$5x - 2y + z = 0$$

$$\left(-\frac{5}{8}, -\frac{1}{8}, 2\frac{7}{8}\right)$$

2. $2x + 3y = -2$

$$x + y = 1$$

$$x - 2y = 13$$

$$(5, -4)$$