Algebra 1 Name_____ ID: 1

Midterm Review 1

Date_____ Period____

Evaluate each expression.

1) $1 - -3 + 6$

$4 + 6$

10

2) $(12 \div 6)(-1)$

$(2)(-1)$

-2

3) $(-15 \div -3)^2 - -6$

$(5)^2 - -6$

$25 + +6$

31

4) $(-1 + 3)(-2) + 1$

$(2)(-2) + 1$

$-4 + 1$

-3

5) $3 + (5 - 6)((5)(4)) - 6$

$3 + (5-6)(20) - 6$

$3 + (-1)(20) - 6$

$3 - 20 - 6$

$-17 - 6$

-23

6) $(2^3)(((-1)^2)(-4 + 3))$

$(2^3)((1)(-4+3))$

$(2^3)((1)(-1))$

$(2^3)(-1)$

$(8)(-1)$

-8

7) $(-9) - (-7) - (-6) + 10$

$-2 - (-6) + 10$

$4 + 10$

14

8) $5 \times \frac{30}{3} \times (-2)$

$50 \times (-2)$

-100

Simplify each expression.

9) $-4 + 3(3 - 2p)$

$-4 + 9 - 6p$

$5 - 6p$

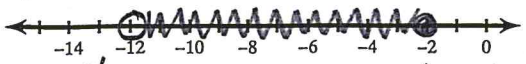
10) $-9 + 2(r - 4)$

$-9 + 2r - 8$

$2r - 17$

Solve each compound inequality and graph its solution.

18) $-5n - 8 \geq 6 + 2n$ and $-7 - 6n < -5n + 5$



$-5n - 8 \geq 6 + 2n$ and $-7 - 6n < -5n + 5$

$+8 \quad +8 \qquad +7 \quad +7$

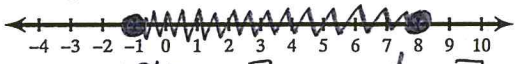
$-5n \geq 14 + 2n \qquad -6n < -5n + 12$

$-2n \quad -2n \qquad +5n \quad +5n$

$\frac{-7n}{-7} \geq \frac{14}{-7} \qquad \frac{-n}{-1} < \frac{12}{-1}$

$n \leq -2 \qquad n > -12$

19) $6p + 10 \geq 2 + 7p \geq -1 + 4p$



$6p + 10 \geq 2 + 7p \qquad \frac{2}{+2} + 7p \geq -1 + 4p$

$-10 \quad -10 \qquad -2$

$6p \geq -8 + 7p \qquad 7p \geq -3 + 4p$

$-7p \quad -7p \qquad -4p \quad +4p$

$\frac{-p}{-1} \geq \frac{-8}{-1} \qquad \frac{3p}{3} \geq \frac{-3}{3}$

$p \leq 8 \qquad p \geq -1$

20) $-3p - 6 < 10 + 5p \leq -7p + 10$

$-3p - 6 < 10 + 5p \qquad 10 + 5p \leq -7p + 10$

$+6 \quad +6 \qquad -10 \quad -10$

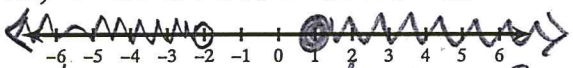
$-3p < 16 + 5p \qquad 5p \leq -7p + 0$

$-5p \quad -5p \qquad +7p \quad +7p$

$\frac{-8p}{-8} < \frac{16}{-8} \qquad \frac{12p}{12} \leq \frac{0}{12}$

$p > -2 \qquad p \leq 0$

21) $4 - x > x + 8$ or $6 - 5x \leq 3 - 2x$



$4 - x > x + 8 \qquad 6 - 5x \leq 3 - 2x$

$-4 \quad -4 \qquad -6 \quad -6$

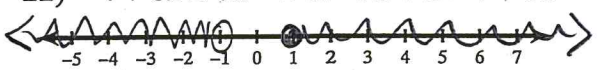
$-x > x + 4 \qquad -5x \leq -3 - 2x$

$-x \quad -x \qquad +2x \quad +2x$

$\frac{-2x}{-2} > \frac{4}{-2} \qquad \frac{-3x}{-3} \leq \frac{-3}{-3}$

$x < -2 \qquad x \geq 1$

22) $-4 + 8x \geq 7x - 3$ or $-9x + 1 > 7 - 3x$



$-4 + 8x \geq 7x - 3 \qquad -9x + 1 > 7 - 3x$

$+4 \quad +4 \qquad -1 \quad -1$

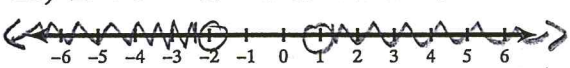
$8x \geq 7x + 1 \qquad -9x > 6 - 3x$

$-7x \quad -7x \qquad +3x \quad +3x$

$x \geq 1 \qquad \frac{-6x}{-6} > \frac{6}{-6}$

$x < -1$

23) $2r + 3 < -2r - 5$ or $2r + 1 > 7 - 4r$



$2r + 3 < -2r - 5 \qquad 2r + 1 > 7 - 4r$

$-3 \quad -3 \qquad -1 \quad -1$

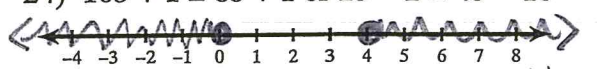
$2r < -2r - 8 \qquad 2r > 6 - 4r$

$+2r \quad +2r \qquad +4r \quad +4r$

$\frac{4r}{4} < \frac{-8}{4} \qquad \frac{6r}{6} > \frac{6}{6}$

$r < -2 \qquad r > 1$

24) $10b + 1 \leq 8b + 1$ or $2b - 2 \leq 4b - 10$



$10b + 1 \leq 8b + 1 \qquad 2b - 2 \leq 4b - 10$

$-1 \quad -1 \qquad +2 \quad +2$

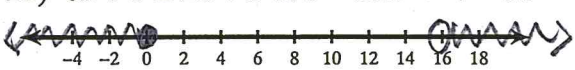
$10b \leq 8b + 0 \qquad 2b \leq 4b - 8$

$-8b \quad -8b \qquad -4b \quad -4b$

$\frac{2b}{2} \leq \frac{0}{2} \qquad \frac{-2b}{-2} \leq \frac{-8}{-2}$

$b \leq 0 \qquad b \geq 4$

25) $8x + 3 \leq 2x + 3$ or $9 - 10x < -7 - 9x$



$8x + 3 \leq 2x + 3 \qquad 9 - 10x < -7 - 9x$

$-3 \quad -3 \qquad +9 \quad -9$

$8x \leq 2x + 0 \qquad -10x < -16 - 9x$

$-2x \quad -2x \qquad +9x \quad +9x$

$\frac{6x}{6} \leq \frac{0}{6} \qquad \frac{-x}{-1} < \frac{-16}{-1}$

$x \leq 0 \qquad x > 16$

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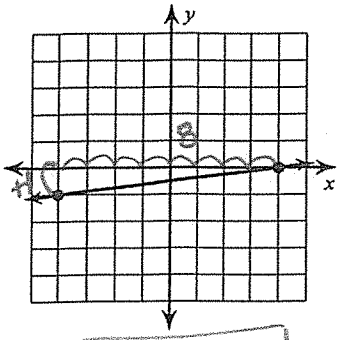
Midterm Review 2

Date_____ Period____

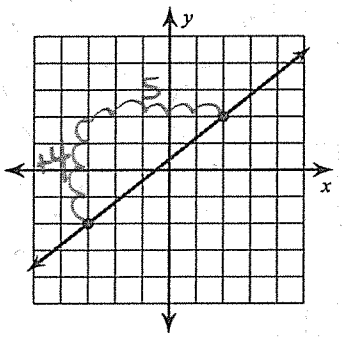
Find the slope of each line.

1)



$m = \frac{1}{8}$

2)



$m = \frac{4}{5}$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Find the slope of the line through each pair of points.

3) $(20, -15), (-4, -3)$ $x_1\ y_1\ x_2\ y_2$

$$m = \frac{(-3) - (-15)}{(-4) - (20)} = \frac{12}{-24}$$

$m = -\frac{1}{2}$

4) $(12, 14), (-14, -17)$ $x_1\ y_1\ x_2\ y_2$

$$m = \frac{-17 - 14}{-14 - 12} = \frac{-31}{-26}$$

$m = \frac{31}{26}$

Find the slope of each line. $y = mx + b$

5) $y = \frac{1}{2}x - 2$

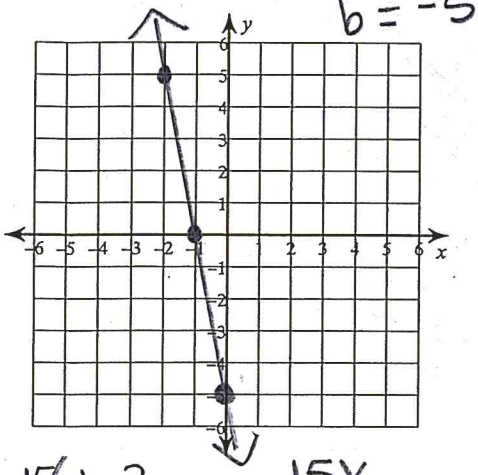
$m = \frac{1}{2}$

6) $y = \frac{1}{3}x - 2$

$m = \frac{1}{3}$

Sketch the graph of each line.

17) $15 + 3y = -15x$



$m = -5$

$b = -5$

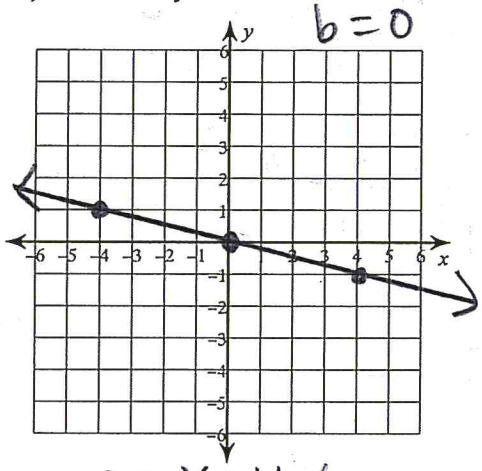
$15 + 3y = -15x$

$-15 \qquad\qquad -15$

$\frac{3y}{3} = \frac{-15x}{3} - \frac{15}{3}$

$y = -5x - 5$

18) $0 = x + 4y$



$m = -\frac{1}{4}$

$b = 0$

$0 = x + 4y$

$-4y \qquad -4y$

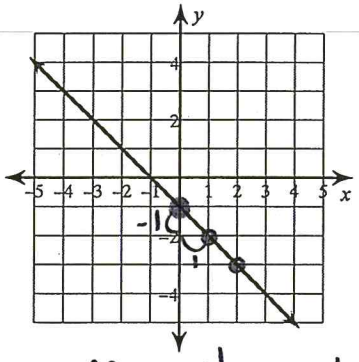
$\frac{-4y}{-4} = \frac{x}{-4}$

$y = -\frac{1}{4}x$

Write the slope-intercept form of the equation of each line.

$y = mx + b$

19)

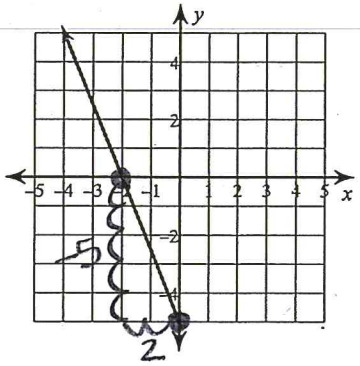


$m = \frac{-1}{1} = -1$

$b = -1$

$y = -x - 1$

20)



$m = \frac{-5}{2}$

$b = -5$

$y = -\frac{5}{2}x - 5$

Write the slope-intercept form of the equation given the slope and y-intercept.

$y = mx + b$

21) Slope = –7, y-intercept = 5

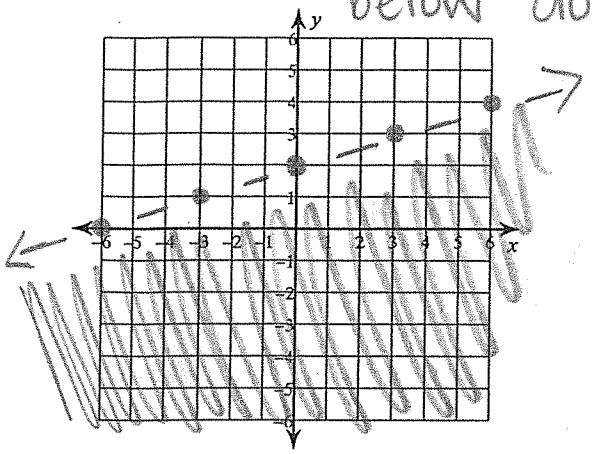
$y = -7x + 5$

22) Slope = $\frac{2}{5}$, y-intercept = 4

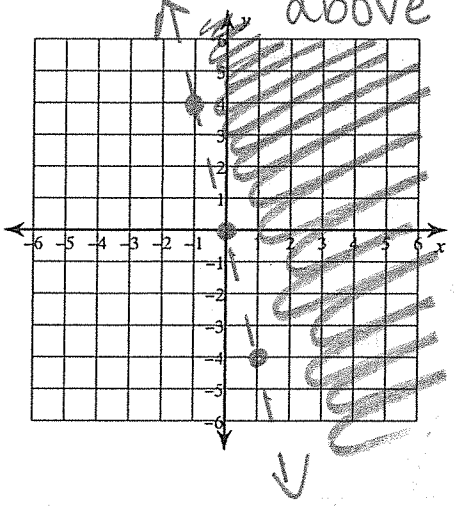
$y = \frac{2}{5}x + 4$

Sketch the graph of each linear inequality.

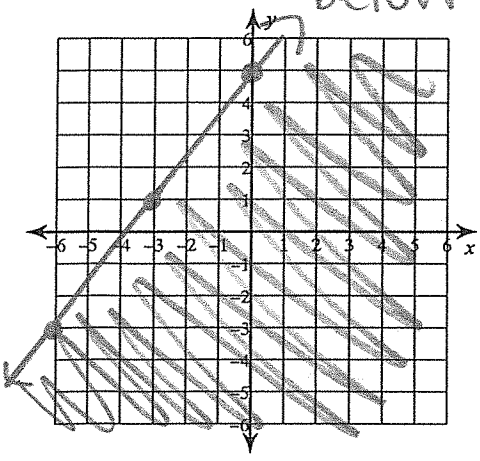
33) $y < \frac{1}{3}x + 2$ $m = \frac{1}{3}$ $b = 2$ below dotted



34) $y > -4x$ $m = -4$ $b = 0$ above dotted



35) $y \leq \frac{4}{3}x + 5$ $m = \frac{4}{3}$ $b = 5$ below solid



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Midterm Review 3

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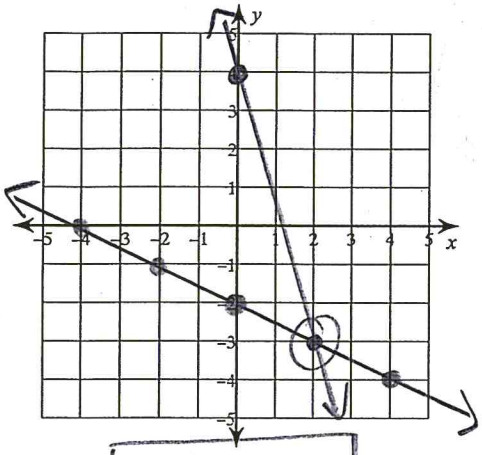
Solve each system by graphing.

1) $y = -\frac{7}{2}x + 4$ $m = \frac{-7}{2}$ $b = 4$

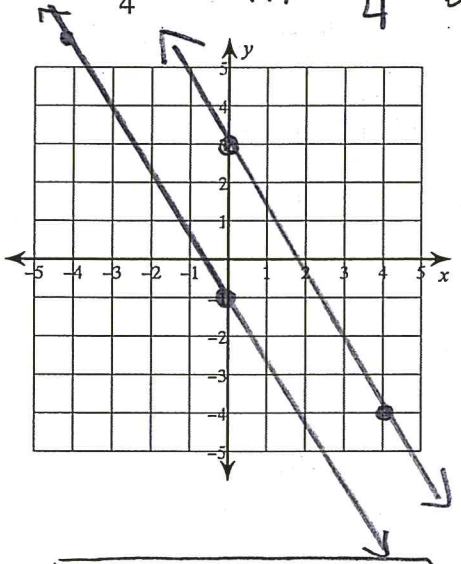
$y = -\frac{1}{2}x - 2$ $m = -\frac{1}{2}$ $b = -2$



(2, -3)

2) $y = -\frac{7}{4}x + 3$ $m = \frac{-7}{4}$ $b = 3$

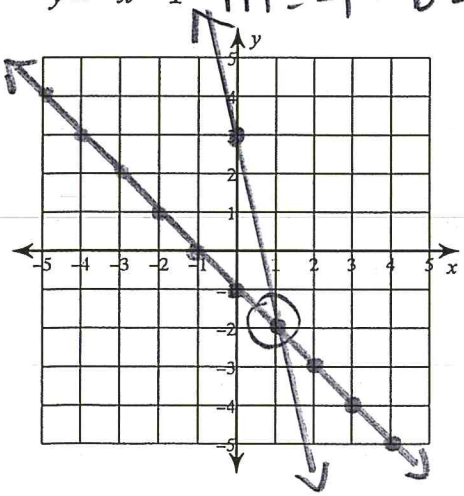
$y = -\frac{7}{4}x - 1$ $m = \frac{-7}{4}$ $b = -1$



NO SOLUTION

3) $y = -5x + 3$ $m = -5$ $b = 3$

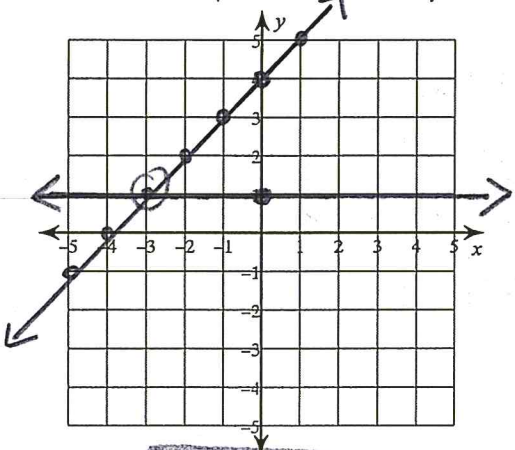
$y = -x - 1$ $m = -1$ $b = -1$



(1, -2)

4) $y = x + 4$ $m = 1$ $b = 4$

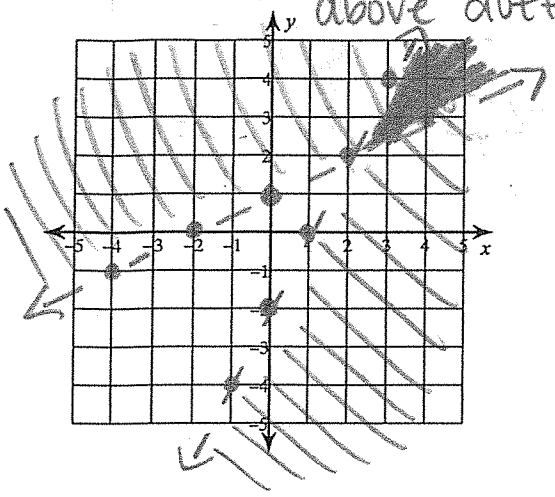
$y = 1$ $m = 0$ $b = 1$



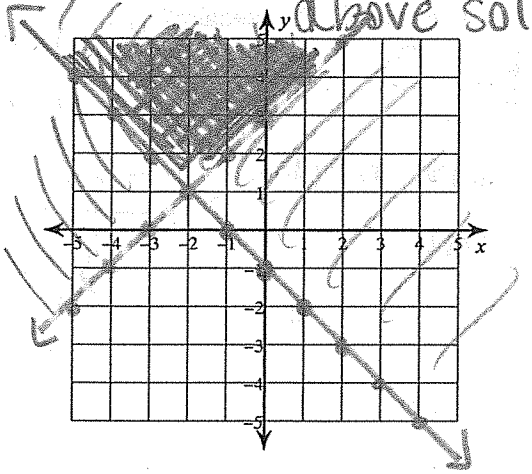
(-3, 1)

Sketch the solution to each system of inequalities.

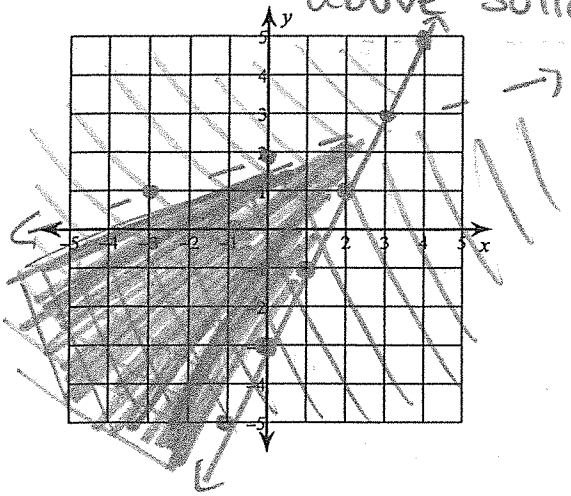
14) $y < 2x - 2$ m = 2 b = -2 below dotted
$y > \frac{1}{2}x + 1$ m = ½ b = 1 above dotted



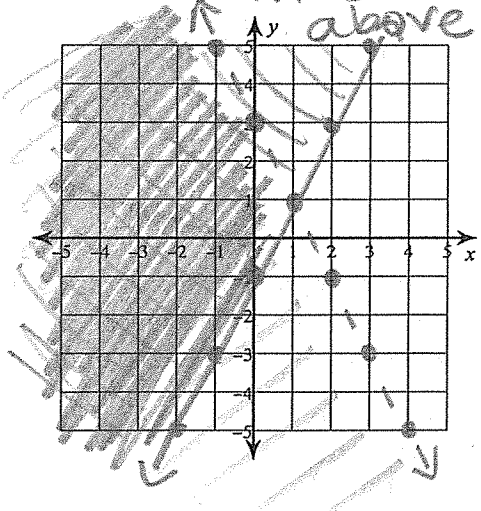
15) $y > x + 3$ m = 1 b = 3 above dotted
$y \geq -x - 1$ m = -1 b = -1 above solid



16) $y < \frac{1}{3}x + 2$ m = ⅓ b = 2 below dotted
$y \geq 2x - 3$ m = 2 b = -3 above solid



17) $y < -2x + 3$ m = -2 b = 3 below dotted
$y \geq 2x - 1$ m = 2 b = -1 above solid



23) Alberto and Huong are selling cheesecakes for a school fundraiser. Customers can buy pecan cheesecakes and chocolate marble cheesecakes. Alberto sold 2 pecan cheesecakes and 1 chocolate marble cheesecake for a total of $19. Huong sold 11 pecan cheesecakes and 11 chocolate marble cheesecakes for a total of $165. What is the cost each of one pecan cheesecake and one chocolate marble cheesecake?

p = cost of pecan cheesecake

c = cost of chocolate cheesecake

$2p + c = 19$

$11p + 11c = 165$

$-11(2p + c = 19)$

$11p + 11c = 165$

$+ -22p - 11c = -209$

$\frac{-11p}{-11} = \frac{-44}{-11}$

$p = 4$

$2(4) + c = 19$

$8 + c = 19$

$-8 \quad -8$

$c = 11$

24) The senior classes at High School A and High School B planned separate trips to the local amusement park. The senior class at High School A rented and filled 10 vans and 14 buses with 714 students. High School B rented and filled 3 vans and 7 buses with 343 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?

v = students in vans

b = students in buses

$10v + 14b = 714$

$3v + 7b = 343$

$10v + 14b = 714$

$-2(3v + 7b = 343)$

$-6v - 14b = -686$

$+ 10v + 14b = 714$

$\frac{4v}{4} = \frac{28}{4}$

$v = 7$

$10(7) + 14b = 714$

$70 + 14b = 714$

$-70 \quad -70$

$\frac{14b}{14} = \frac{644}{14}$

$b = 46$

25) Krystal and James each improved their yards by planting daylilies and shrubs. They bought their supplies from the same store. Krystal spent $125 on 11 daylilies and 6 shrubs. James spent $59 on 5 daylilies and 3 shrubs. Find the cost of one daylily and the cost of one shrub.

d = cost of daylily

s = cost of shrub

$11d + 6s = 125$

$5d + 3s = 59$

$11d + 6s = 125$

$-2(5d + 3s = 59)$

$-10d - 6s = -118$

$+ 11d + 6s = 125$

$d = 7$

$11(7) + 6s = 125$

$77 + 6s = 125$

$-77 \quad -77$

$\frac{6s}{6} = \frac{48}{6}$

$s = 8$