Chapter 7 Review Packet

Name: _____ **Date:** _____

Solve the following word problems (8 points)

1). Fitness A gym is selling monthly memberships for $30 each and reusable water bottles for $7 each. The gym needs to make $1050 by the end of the month.

A). Write a linear equation that describes the problem.

Membership = $30(x)$
Water Bottles = $7(y)$
total = 1,050

$30(x) + 7(y) = 1{,}050$

B). Graph the linear equation. Find values for your graph and make sure to label both axes with appropriate titles.

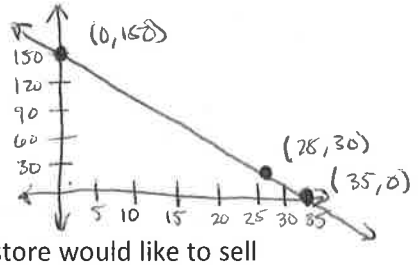
x	y
0	150
28	30
35	0

$30(0) + 7(y) = 1{,}050$
$0 + 7y = 1{,}050$
$\frac{7y}{7} = \frac{1{,}050}{7}$
$y = 150$

$30(x) + 7(0) = 1{,}050$
$30(x) + 0 = 1{,}050$
$\frac{30(x)}{30} = \frac{1{,}050}{30}$
$x = 35$

C). Use the graph to approximate the number of water bottles that the gym must sell if it sells 28 gym memberships

$30(28) + 7(y) = 1{,}050$
$840 + 7(y) = 1{,}050$
$-840 \quad -840$
$\frac{7(y)}{7} = \frac{210}{7}$
$y = 30$



2). A bookstore sells textbooks for $80 each and notebooks for $4 each. The bookstore would like to sell $800 in merchandise by the end of the week.

A). Write a linear equation that describes the problem.

textbooks: $80(x)$
Notebooks: $4(y)$
total: $800

$80(x) + 4(y) = 800$

B). Graph the linear equation. Find values for your graph and make sure to label both axes with appropriate titles.

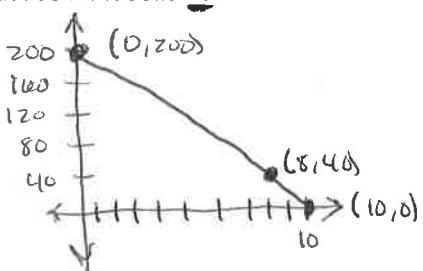
x	y
0	200
8	40
10	0

$80(0) + 4y = 800$
$0 + 4y = 800$
$\frac{4y}{4} = \frac{800}{4}$
$y = 200$

$80(x) + 4(0) = 800$
$80(x) + 0 = 800$
$\frac{80(x)}{80} = \frac{800}{80}$
$x = 10$

C). Use the graph to approximate how many textbooks the bookstore must sell if it sells 40 notebooks.

$80(x) + 4(40) = 800$
$80(x) + 160 = 800$
$-160 \quad -160$
$\frac{80(x)}{80} = \frac{640}{80}$
$x = 8$



Solve the following problems (6 Points)

3). Lottie needs a driver. Driver A is offering his services for an initial $200 in addition to $80 per hour. Driver B is offering his services for an initial $230 in addition to $70 per hour. When will the two drivers charge the same amount of money?

Driver A: $80(x) + 200$
Driver B: $70(x) + 230$

$80(x) + 200 = 70(x) + 230$
$-70(x) \quad -70(x)$
$10(x) + 200 = 230$
$-200 \quad -200$
$\frac{10(x)}{10} = \frac{30}{10}$
$x = 3$ hours

$80(3) + 200$
$240 + 200$
$\$440$

In 3 hours, the Drivers will both charge $440.

4). Garrett needs a baseball coach. Coach A is offering her services for an initial $5000 in addition to $450 per hour. Coach B is offering her services for an initial $4000 in addition to $700 per hour. When will the two coaches charge the same amount of money?

Coach A: $450(x) + 5000$
Coach B: $700(x) + 4000$

$450(x) + 5000 = 700(x) + 4000$
$-450(x) \quad -450(x)$
$5000 = 250(x) + 4000$
$-4000 \quad -4000$
$\frac{1000}{250} = \frac{250(x)}{250}$
$4 = x$

$700(4) + 4000$
$2800 + 4000$
$\$3200$

In 4 hours, the coaches will both charge $3200.

5). Zena needs a salesperson. Salesperson A is offering his services for an initial $50 in addition to $5 per hour. Salesperson B is offering her services for $15 per hour. When will the two salespeople charge the same amount of money?

Salesperson A: $5(x) + 50$
Salesperson B: $15(x)$

$5(x) + 50 = 15(x)$
$-5(x) \quad -5(x)$
$\frac{50}{10} = \frac{10(x)}{10}$
$5 = x$

$15(5) = \$75$

In 5 hours, both salespersons will charge $75.

Solve the following inequalities and graph your results (8 points)

6). $10x - 6y > -36$

$-10x \quad -10x$

$\frac{-6y}{-6} > \frac{-10x - 36}{-6}$

$y < \frac{-10x}{-6} + \frac{-36}{-6}$

$\boxed{y < \frac{5}{3}x + 6}$

x-int.

$y < \frac{5}{3}(x) + 6$

$0 < \frac{5}{3}(x) + 6$

$-6 \quad -6$

$\frac{3}{5}(-6) < \frac{5}{3}(x)\left(\frac{3}{5}\right)$

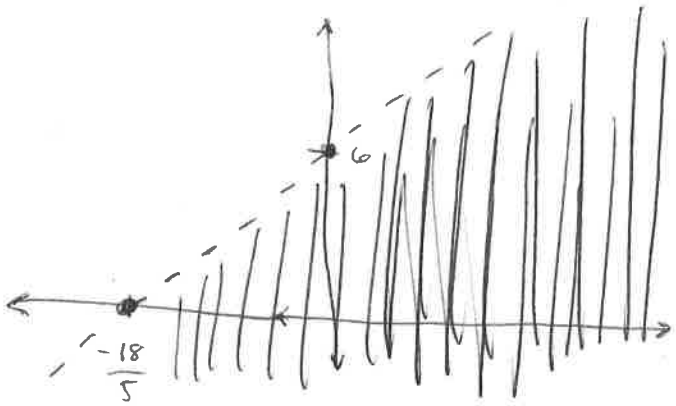
$\boxed{\frac{-18}{5} < x}$

y-int.

$y < \frac{5}{3}(x) + 6$

$y < \frac{5}{3}(0) + 6$

$\boxed{y = 6}$



7). $7x + 2y < 2$

$-7x \quad -7x$

$\frac{2y}{2} < \frac{-7x + 2}{2}$

$\boxed{y < \frac{-7}{2}x + 1}$

x-int.

$y < \frac{-7}{2}(x) + 1$

$0 < \frac{-7}{2}(x) + 1$

$-1 \quad -1$

$-\frac{2}{7}(-1) < -\frac{7}{2}(x)\left(-\frac{2}{7}\right)$

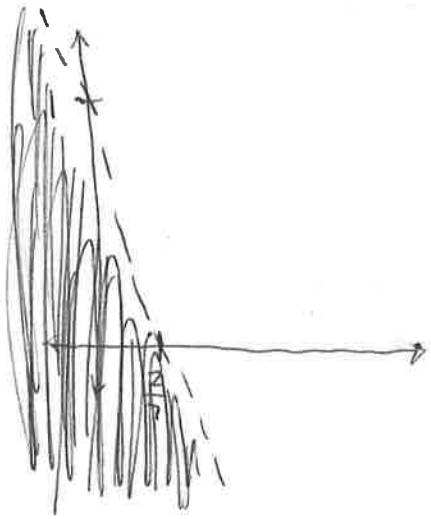
$\boxed{\frac{2}{7} < x}$

y-int.

$y < -\frac{7}{2}(x) + 1$

$y < -\frac{7}{2}(0) + 1$

$\boxed{y < 1}$



Create an equations using in the form of $y - y_1 = m(x - x_1)$. (3 points)

8). Slope is $\frac{3}{4}$ and the point (4, 3) is on the line.

$y - 3 = \frac{3}{4}(x - 4)$

9). The points (1, 4) and (4, 16) are on the line

$\frac{16-4}{4-1} = \frac{12}{3} = 4$

$y - 4 = 4(x - 1)$

Create an Equation in the form A(x) + B(y) = C by using $y - y_1 = m(x - x_1)$. (3 points)

10). Slope is $\frac{1}{2}$ and the point (2, 4) is on the line.

$y - 4 = \frac{1}{2}(x - 2)$

$y - 4 = \frac{1}{2}(x) - 1$

$+4 \qquad +4$

$y = \frac{1}{2}(x) + 3$

$-\frac{1}{2}(x)$

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

11). The points (2, 5) and (8, 20) are on the line

$\frac{20-5}{8-2} = \frac{15}{6} = \frac{5}{3}$

$y - 5 = \frac{5}{3}(x - 2)$

$y - 5 = \frac{5}{3}(x) - \frac{10}{3}$

$+5 \qquad +5$

$y = \frac{5}{3}(x) + \frac{5}{3}$

$-\frac{5}{3}(x) \quad -\frac{5}{3}(x)$

$-\frac{5}{3}(x) + y = \frac{5}{3}$

$\rightarrow -\frac{10}{3} + \frac{15}{3}$

Create an equation in the form of y = m(x) + b. (3 points)

12). Slope is $\frac{2}{5}$ and the point (10, 2) is on the line.

$2 = \frac{2}{5}(10) + b$

$2 = 4 + b$

$-4 \quad -4$

$-2 = b$

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

13). The points (3, 6) and (9, 18) are on the line

$\frac{18-6}{9-3} = \frac{12}{6} = 2$

$6 = 2(3) + b$

$6 = 6 + b$

$-6 \quad -6$

$0 = b$

$y = 2(x) + 0$