

Warm Up**Week 6**

Monday: On sheet write **Decimal wkst**

Grab decimal wkst and do #13-24

Homework Questions?

$$\underline{32} \quad 12.67 + 42.35x = 5.34x + 26.9$$

$$\quad \quad \quad - 5.34x \quad - 5.34x$$

$$12.67 + 37.01x = 26.58$$

$$-12.67 \quad \quad \quad -12.67$$

$$\frac{37.01x}{37.01} = \frac{13.91}{37.01}$$

$$x = \frac{0.3758}{0.38}$$

$$\begin{array}{r}
 \underline{36} \quad 5.86x - 31.94 = 27.51x - 3.21 \\
 - 5.86x \qquad \qquad - 5.86x \\
 \hline
 -31.94 = 21.65x - 3.21 \\
 + 3.21 \qquad \qquad + 3.21 \\
 \hline
 -28.73 = 21.65x \\
 \underline{\quad 21.65 \quad} \quad \underline{\quad 21.65 \quad} \\
 \hline
 x \approx -1.33
 \end{array}$$

-1.32702...

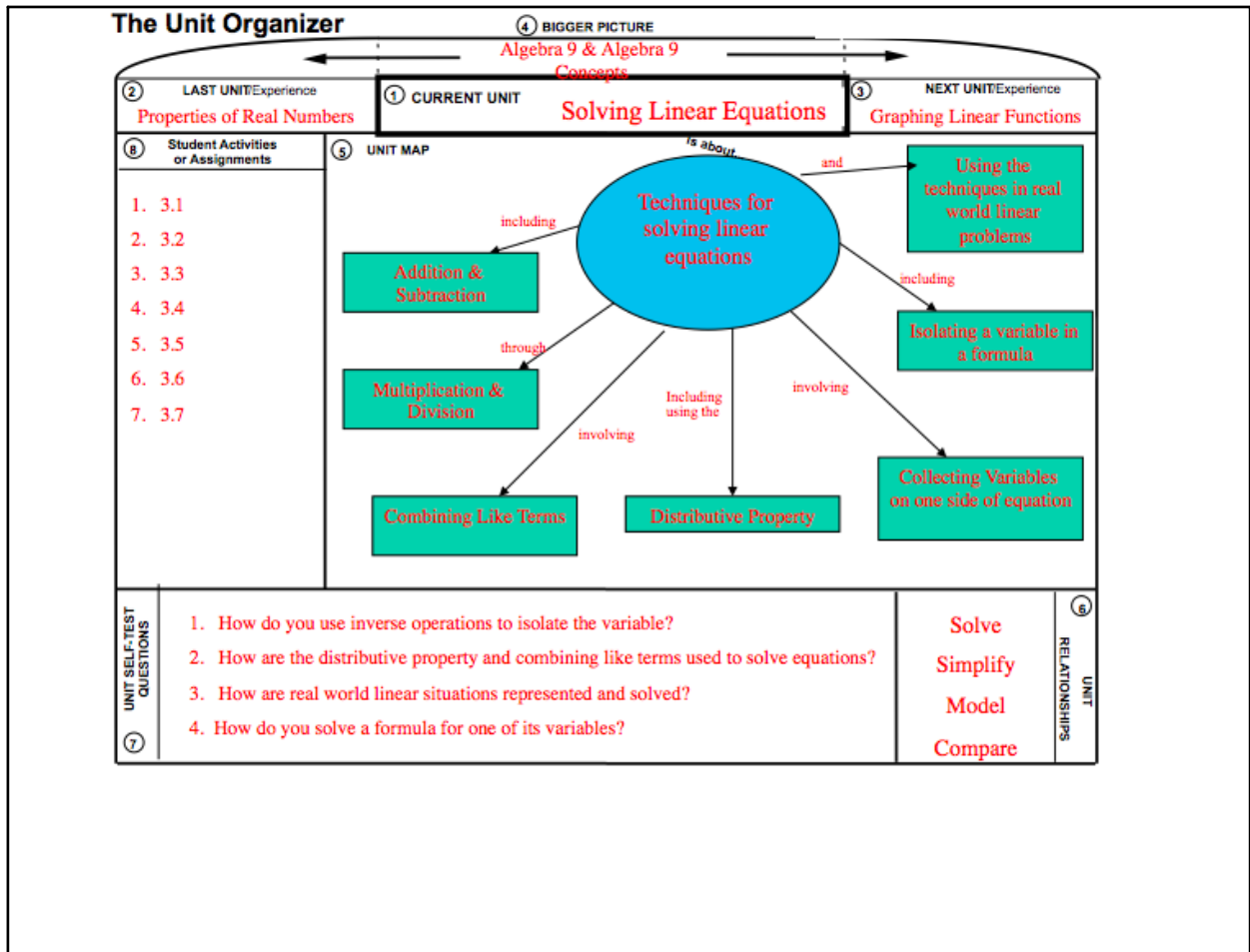
3.5 Linear Equations and Problem Solving

Goal: • Solve real-life problems by writing equations or modeling

EQ: What is slope-intercept form?

$$y = mx + b$$

P. 15



$$y = mx + b$$

rate
(per)
(each)

begin

1.

Sarah decided she wants to start a savings account. She opened her account with \$50 and will put in \$15 each week. Write an expression for the amount of money, m , in the account after w weeks.

$$m = 50 + 15w$$

$$m = 15w + 50$$

2. Cambridge Credit Union charges \$10 service charge plus an additional \$0.10 per check written to have a checking account with them. Write an expression for the monthly charge, m of having a checking account with c checks written.

$$m = 0.10c + 10$$

3. The flood waters reached a level of 27 feet above normal. When the water started to recede, it went down 3 feet per day. Write an expression for the water level, l , after d days.

$$l = 27 - 3d$$

$$l = -3d + 27$$

4. Will decided to go on a diet. He currently weighs 190 pounds. He intends to lose 2 pounds per week. Write an expression to represent Will's weight, s , after w weeks.

$$s = -2w + 190$$

5. ABC Wireless charges a monthly fee of \$40 plus an additional \$0.01 per minute to use a cell phone. Write an expression for the monthly cost, y , of using a cell phone for x minutes.

$$y = 0.01x + 40$$

How much does it cost to use the cell phone for one month using 532 minutes?

$$y = 0.01(532) + 40$$

$$= 5.32 + 40$$

\$45.32

6. The sporting goods store charges \$15 for a trophy. It also charges \$0.10 for each letter engraved on the trophy. Write an expression for the cost, c , of buying a trophy and having g letters engraved on it.

$$c = 0.10g + 15$$

How much does it cost to buy a trophy with the saying '1st Place Victory!'

$$c = 0.10(16) + 15$$

$$= 1.6 + 15$$

$$c = 16.60$$

16

\$16.60

7. Sue has a book to read for her class that is 1000 pages long. She figures she can read 100 pages per day. Write an expression for how many pages, p , Sue has left to read after d days.

$$P = -100d + 1000$$

How many pages does Sue have left if she's read the book for 3 days?

$$P = -100(3) + 1000$$

$$= -300 + 1000$$

700 pages

How many days has Sue read her book if she has only 200 pages left?

$$200 = -100d + 1000$$

$$-1000 \quad -1000$$

$$\frac{-800}{-100} = \frac{-100d}{-100}$$

$$d = 8$$

8 days

8. Tim's T-shirt Shop charges \$25 for silk-screening plus \$10 per t-shirt. Write an expression for the cost of having T t-shirts silk-screened.

$$C = 10T + 25$$

How much will it cost to have 30 t-shirts made?

$$C = 10(30) + 25$$

$$C = 325$$

\$325

How many t-shirts did someone buy if they paid \$2625?

$$2625 = 10T + 25$$

$$-25 \quad -25$$

$$\frac{2600}{10} = \frac{10T}{10}$$

T = 260 t-shirts

9. A truck rental store charges \$39.95 to rent a truck. They also charge \$0.39 per mile. Write an expression for the cost, c , of renting and driving a truck m miles.

$$C = 0.39m + 39.95$$

How much will it cost to rent and drive a truck for 108 miles?

$$C = 0.39(108) + 39.95$$

$$= \$82.07$$

How many miles did someone drive if they paid \$161.63?

$$161.63 = 0.39m + 39.95$$

$$- 39.95 \quad - 39.95$$

$$121.68 = 0.39m$$

$$\frac{121.68}{.39} = \frac{.39m}{.39}$$

$$m = 312 \text{ miles}$$

3.5 Notes Day 2

3.5 Notes Day 2: Solving Rate Problems

1. Sue earns \$6 per hour plus an additional \$100 in a month. Write an expression to represent her pay, p , if she works h hours in a month.

$$P = 6h + 100$$

If Sue is trying to save for a ^{cell phone} priced at \$460, how many hours does she need to work in a month to save that much money?

$$460 = 6h + 100$$

$$- 100 \quad - 100$$

$$360 = 6h$$

$$\frac{360}{6} = \frac{6h}{6}$$

$$h = 60 \text{ hours}$$

2. A health club has two payment plans. You can become a member by paying a \$10 new member fee and use the gym for \$5 per visit. Or you can use the gym as a nonmember for \$7 per visit. Write an expression to represent the cost, c , of being a member for v visits. Write a new expression for the cost, c , of being a nonmember for v visits.

Member $C = 5v + 10$ Nonmember $C = 7v$

Compare the costs of the two payment plans. How many visits to the gym would be necessary for the two plans to cost the same?

$$5v + 10 = 7v$$

$$- 5v \quad - 5v$$

$$10 = 2v$$

$$\frac{10}{2} = \frac{2v}{2}$$

$$v = 5$$

$$5 \text{ visits}$$

For how many visits is the member plan cheaper? The nonmember plan?

$v > 5$ member cheaper $v < 5$ non-member cheaper

3.5 Notes Day 2

3. A rental store will rent a bobcat for \$18 per hour with a \$20 rental fee, or it can be rented for the whole day for \$110. Write an expression to represent the cost, c , of renting it for h hours. Write an expression for the cost, c , of renting it for the whole day.

By the hour _____ For the day _____

Compare the two plans. How many hours are needed for the costs to be the same?

For how many hours is it cheaper to rent by the hour?

For how many hours is it cheaper to rent it for the day?

4. A video store charges \$8 per video game to rent for a week. Membership to the video store is free. A video game club charges only \$3 per video game to rent for a week, but membership in the club is \$50 for the year. Write an expression to represent the cost, c , of renting g videos games under each plan.

Video store _____ Video game club _____

For how many games are the costs the same?

For how many games is the store cheaper?

For how many games is the club cheaper?

Chapter 3 – Algebra 1.5
3.5 Linear Equations and Problem Solving Day 2

Page 18

Summary

EQ: What is slope-intercept form?

$$y = mx + b$$

↑
rate
(per)
(each)

begin

3.5 Homework

3.5
Packet #1-8