Name _____ Date_____

Volume 6 Lesson 2 Supplemental Worksheet

Use the formula $\frac{d}{r} = t$ to solve the following word problems.

1. Adam raced his mountain bike up an extremely steep and difficult trail on Mt. Stacko. By the end of the race, he had travelled 1 ½ miles and it took him 2 hours to complete. What was Adam's average speed during the race?

2. Clara was typing an article for her blog. Her article contained 1475 words. She knew exactly what she wanted to write, so she flew through it in one sitting. It only took her 21 minutes to type it up. How many words per minute did she type? You can round your answer down to two decimal places.

3. Thomas drove his remote-controlled car as fast as he could for 50 yards. It only took 8 seconds to go that far. How many yards per second did the car travel? How many feet per second did it travel? A mile is 5280 feet. Approximately how many miles per hour did it travel? You can round your answer.

4. Ben rode his mountain bike through an obstacle course full of difficult turns and jumps. He must finish the course in less than 20 minutes in order to qualify. The entire course is only a quarter mile long, but the trail is so challenging that he can only travel at an average speed of 1 mile per hour. At that rate, will he qualify for the race?

Name _____ Date _____

Volume 6 Lesson 3 Supplemental Worksheet

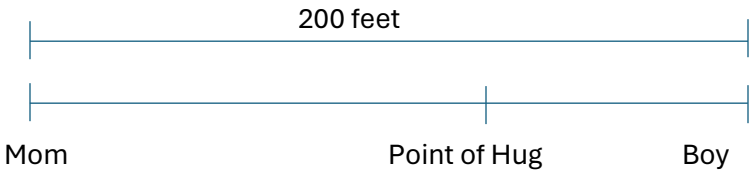
1. In a factory, two men are preparing items to be shipped. The new guy is kind of slow at preparing the items. He can only prepare 11 kits in one hour. The other guy has worked there for a while, so he can prepare 27 kits per hour. If they both work at this rate for six hours, how many kits will they prepare?

2. At the other end of the factory, two women are packing the kits into boxes. The manager can pack 12 boxes in one hour and the new girl can pack 7 boxes per hour. If they continue at this rate, how long will it take the two women to pack 152 boxes?

Volume 6 Lesson 3 Worksheet page 2

3. A waitress worked for 8 hours. She earned $120 in wages and another $104.32 in tips. How much money did she earn per hour?

4. A boy is 200 feet away from his mom. He is running towards her at the rate of 1000' per minute. His mom is running towards him at 3000' per minute to hug him. How far did the mother run to hug her son? How far did the boy run?

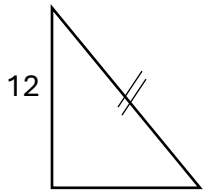


Name _____ Date _____

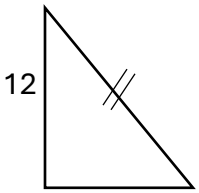
Volume 6 Lesson 4 Worksheet page 2

1. Describe the word "Congruent" in one word. _____

2. Are the two Right Triangles below congruent?

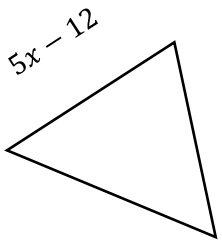


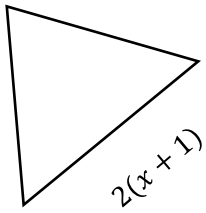
$3x - 6$



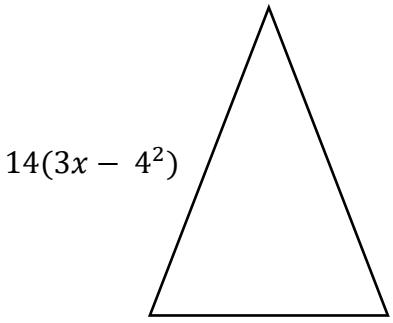
$x + 10$

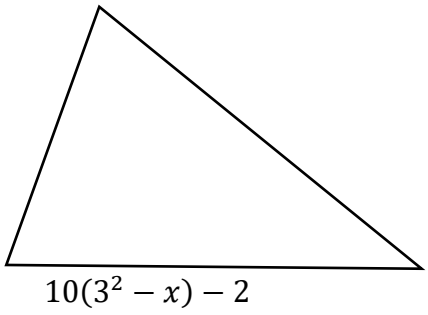
3. If $x = 15$, then are the two equilateral triangles below congruent?





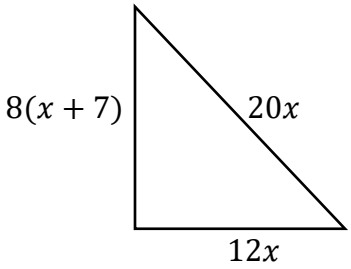
4. The two isosceles triangles below are congruent. Solve for x.

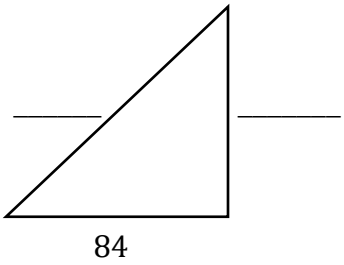




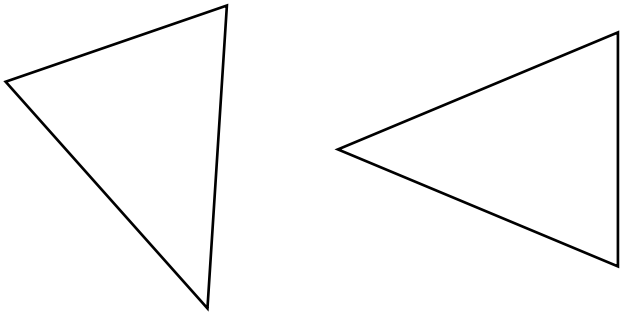
Volume 6 Lesson 4 Worksheet page 2

5. The two triangles below are congruent. Solve for x and then fill in the blanks.

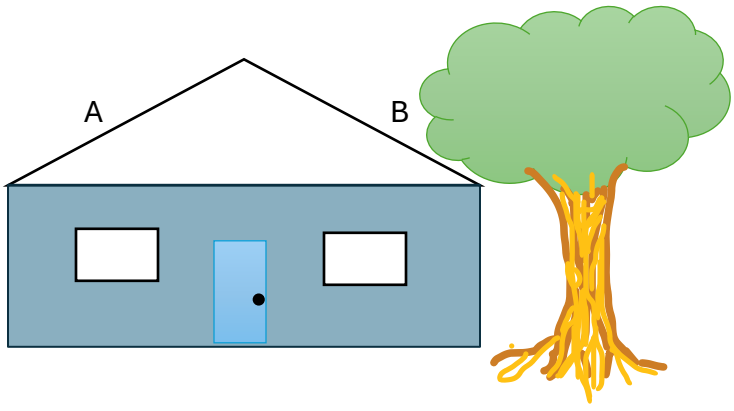




6. Draw marks on the two congruent isosceles triangles below to show which sides are congruent.



7. The roof of the house below needs to be replaced. Pat, the roofer, needs to measure the roof. She measured side A, and it was 24 feet, but she couldn't measure side B because there was a tree in the way. Knowing what you've learned in this lesson, can you guess the length of side B? _____

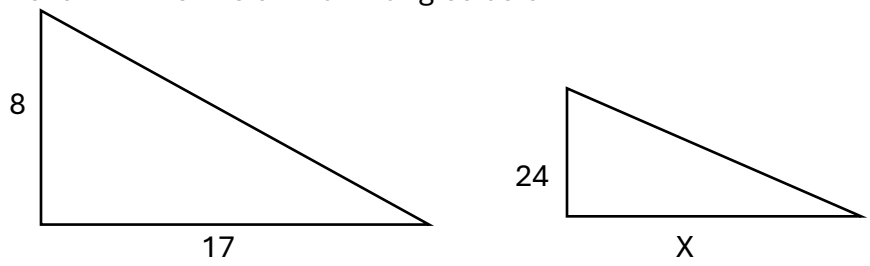


Name _____ Date _____

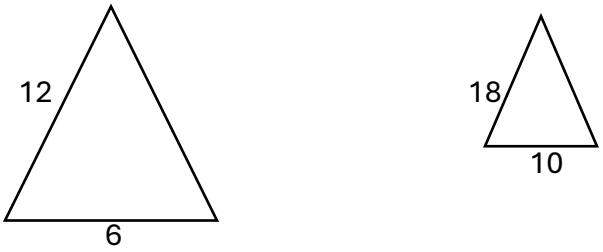
Volume 6 Lesson 5 Worksheet

1. Similar triangles are the same _____, but not the same _____.

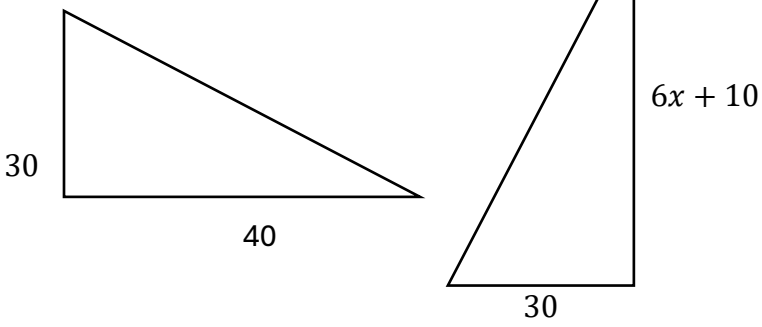
2. Solve for x in the two similar triangles below.



3. Are the two triangles below Similar?

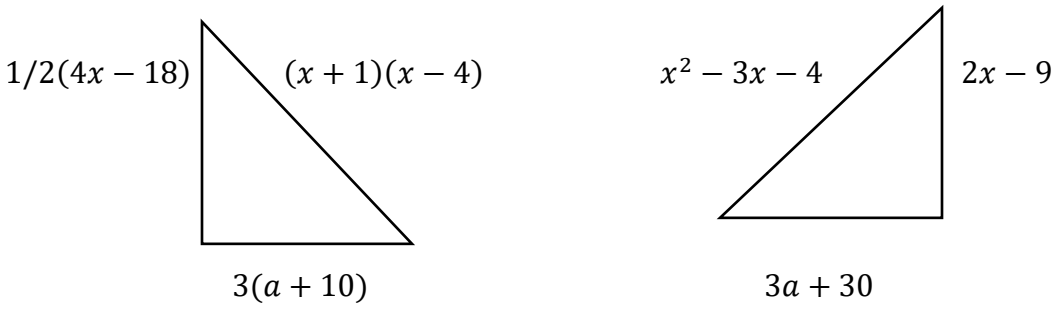


4. Are the two triangles below similar or congruent?

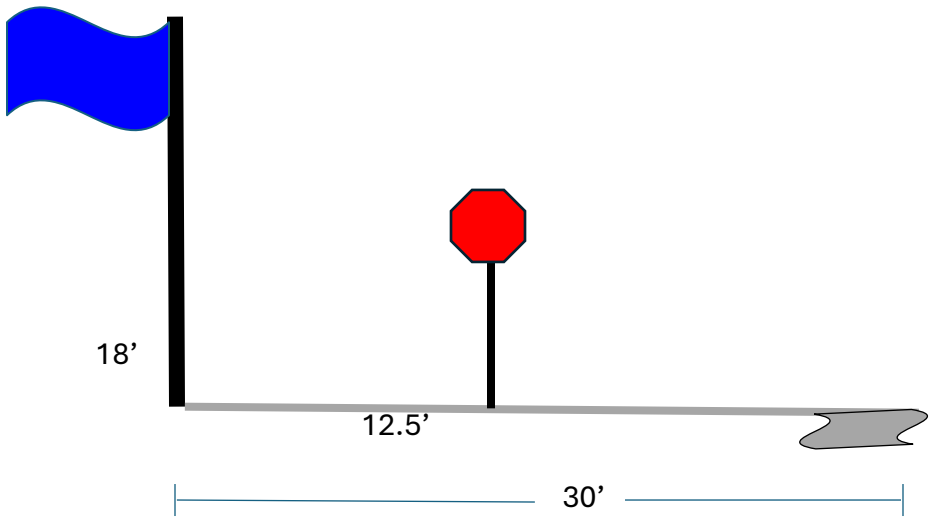


Volume 6 Lesson 5 Worksheet page 2

5. Are the two triangles below similar or congruent? Don't look at the shapes, just simplify each expression, if possible.

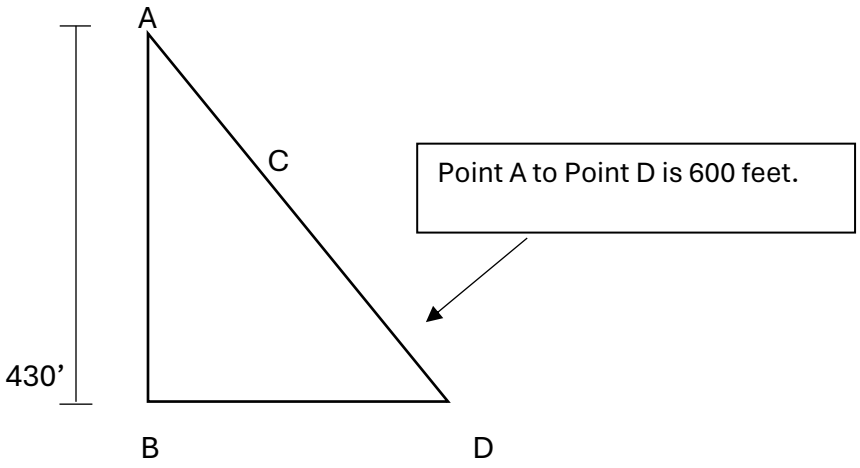


6. An 18-foot-tall flagpole is casting a 30-foot shadow over a street sign that is 12 ½-feet away. How tall is the street sign?

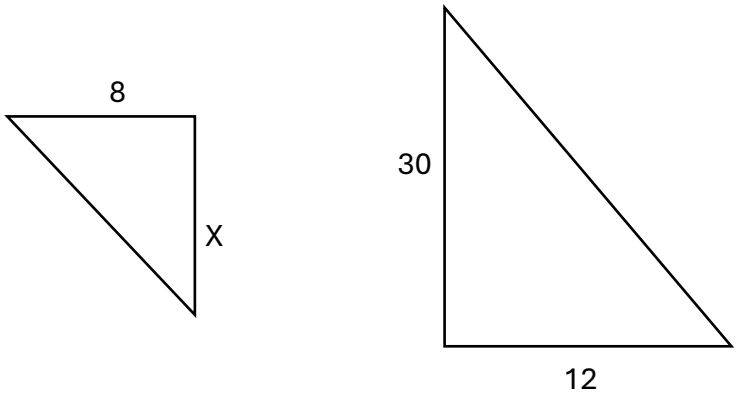


Volume 6 Lesson 5 Worksheet page 3

7. Two rock climbers are climbing the same mountain, which is drawn below. If a hiker reaches the top (point A), then he/she will be 430 feet higher than point B and will have traveled 600 feet. The first climber made it to the top, but the second climber was only able to travel 420 feet (point C). What is the elevation (height) at point C?

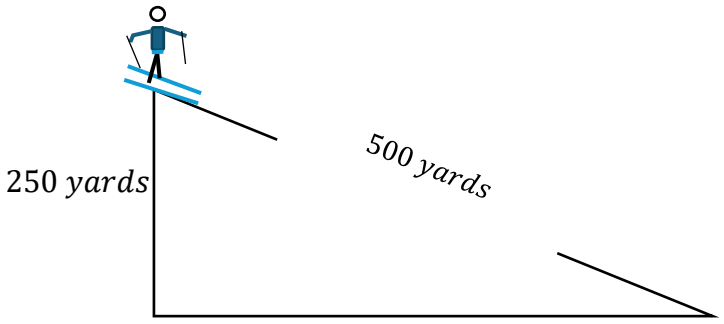


8. Look at the two Similar Triangles below. Solve for x and then find the area of the smaller triangle.

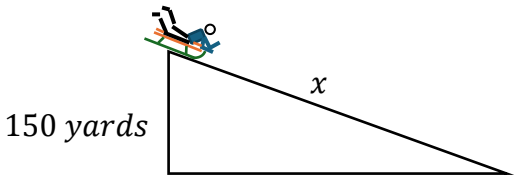


Volume 6 Lesson 5 Worksheet page 4

9. A woman is going to ski down a mountain, which is drawn below.



A man is going to sled down a similar mountain. It is drawn below. It will take him 1 ½ minutes to get to the bottom of the hill. What will his rate of speed be in **FEET** per minute?



The woman skied at the same rate of speed as the man. How long did it take her to get to the bottom of the mountain?

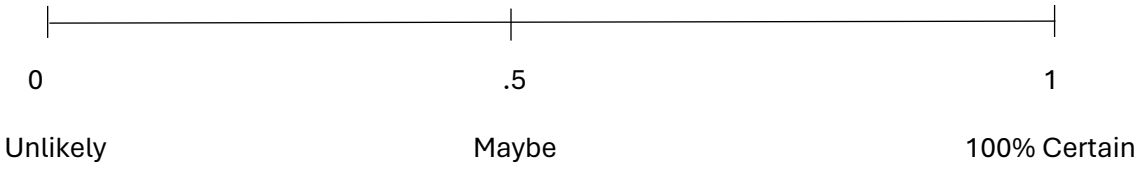
Name _____ Date _____

Volume 6 Lesson 6 Worksheet

1. I bought a container of 20 strawberries, but six of them were bruised and mushy. What is the probability of picking a bruised strawberry the first time I reach into the container? Reduce your answer and then change it to a decimal number.

2. You and your friend are playing a game. To find out who goes first you must draw a card from an ordinary deck of 52 playing cards. The one who draws a higher value goes first (Ace = 14). You draw a five of clubs. What is the probability that your friend will draw a higher card? Turn your answer into a percentage, by dividing.

3. A storeowner has a brand-new roll of 50 lottery tickets. In every roll, four of the tickets are guaranteed winners. What is the probability of picking two tickets from the brand-new roll and both of them being winners? Round your answer down to the nearest thousandth and then place it on the "Probability Number Scale" below.



Volume 6 Lesson 6 Worksheet page 2

4. A carnival game has 25 ducks in a pool of water. Each duck is numbered with a sticker from 1 – 25. What is the probability of picking an odd numbered duck the first time? What is the probability of picking an even numbered duck the first time?

5. The way to win the carnival game described in problem number four is to draw two odd numbered ducks in a row. What is the probability of winning the first time you play the game?

6. In a drawer full of ten brown socks and ten black socks, you grab two socks. What is the probability of the two socks being the same color?

7. What is the probability of throwing one die, three times and it landing on the number five every time? Is it likely to happen or unlikely?

Name _____ Date _____

Volume 6 Lesson 7 Worksheet

1. $5x + 4 > 14$

2. $53 > 5x + 2$

3. $-18x + 3 < 12$

4. $\frac{-9a+12}{-6} > 46$

5. $3(a + 9) < 30$

Volume 6 Lesson 7 Worksheet page 2

6. $-2a + 10 > 20$

7. $\frac{3a}{-10} - 3 < 30$

8. $64 > -7m + 29$

9. $66 < 5j + 16$

10. $3p(5 - 2) > 100$

Name _____ Date _____

Volume 6 Lesson 8 Worksheet

1. A restaurant worker is going to mix two bottles of salad dressing together. The first 8-ounce bottle of vinegar and oil is 36% vinegar. The second 8-ounce bottle of vinegar and oil is 24% vinegar. What will be the percentage of vinegar in the new 16-ounce bottle?

2. Luke has two quarts of eggnog with 7% lemon-lime soda in it. He adds that to three-quart of eggnog with 23% lemon-lime soda in it. What is the percentage of soda in the new five-quart mixture?

3. A painter needs to thin out the paint, so it will flow through the sprayer more easily. If he adds one quart of 100% pure paint thinner to one gallon of paint (0% paint thinner), what will the percentage of paint thinner be in the new batch of paint.

Volume 6 Lesson 8 Worksheet Page 2

4. The gardener made a five-gallon solution of Chlorine and water for the swimming pool. After testing the solution, he found it was only 5% Chlorine. It needs to be 20% chlorine. He finds another solution that is 40% chlorine. How much of that solution should he pour into the 5% chlorine and water solution?

5. An artist is mixing paint colors. She has three cups of brown paint with 7% gold flake, and two cups of brown paint with 30% gold flake. If she mixes the two together, what will be the percentage of gold flake in the new batch of paint?

6. A veterinarian is treating a cat with some medicine out in the wild. She has some gorilla medicine that is 72% strong and some hamster medicine that is 3% strong. She needs the medicine to be 32% strong to treat the cat. She starts with 100 cc's of gorilla medicine. How many cc's of hamster medicine should she add to get down to 32% strong?

Name _____Date _____

Volume 6 Lesson 9 Worksheet

1. A marine biologist has two containers of saltwater. He has 10 gallons of saltwater in one bucket that is 3% salt and another bucket full of 5% saltwater. How much of the 5% saltwater should he add to the 10 gallons to obtain a saltwater solution that is 3.5% salt? Round your answer to the nearest one hundredth.

2. A candy maker has 16 cups of sugar water that is 15% sugar. He adds two cups of sugar water that is 25% sugar. What is the percentage of sugar in the new solution? Round your answer to the nearest whole number.

3. An industrial company buys their cleaner in a concentrated formula. The concentrate is 57% cleaner, so it needs to be diluted with pure water to get it down to 30% cleaner. How much pure water should be added to 3 gallons of the concentrated cleaner?

Volume 6 Lesson 9 Worksheet Page 2

4. A nurse is preparing a prescription. She starts with 50 cc's of a solution that is 85% acetaminophen. She needs to dilute it with pure water until it is only 42% acetaminophen. How many cc's of pure water should she add? Round your answer to the nearest tenth.

5. Dr. Frankenstone has a test tube with 20 cc's of formaldehyde and water. He pours that into a beaker with 200 cc's of pure water. The new solution is now 3% formaldehyde. What was the percentage of formaldehyde in the solution from the test tube?

Name _____Date _____

Volume 6 Lesson 10 Worksheet

1. Breanne is putting 3 ½ cups of Pretzels and Cashews into bags. The pretzels cost $0.20 per cup and the Cashews cost $1.80 per cup. She needs to keep the total cost at $5.90 per bag. How many cups of each snack should she use? Write an equation and then solve for x and y to find how many cups of pretzels and cashews Breanne should use.

2. Rachel has made a batch of sugar cookies. Each sugar cookie costs $0.20 per cookie. She also made a batch of macadamia nut cookies. Those cost $1.40 each to make. She wants to create a mixture of the two and sell them by the dozen. She needs to keep the cost at $12.00 per dozen. How many of each cookie should she use? Write an equation to solve.

Volume 6 Lesson 10 Worksheet Page 2

3. Hannah is selling fireworks at a stand in July. Her boss wants her to create a box of 20 fireworks that will cost $72.00 per box. Each box must contain some of the flying fireworks, that cost $5.00 each and some ground fireworks, which cost $3.00 each. How many of each type of firework should Hannah put in the box?

4. Claire is selling an assortment of hair ribbons and clips. The hair ribbons cost her $3.20 each to make and the hair clips cost $0.82 each. She needs to make a profit of $5.00 on each bag of seven sold. She is going to sell them for $17.88 per bag. How many of each type of hair accessory should she use in the bag of seven?

Name _____Date _____

Volume 6 Lesson 11 Worksheet

Solve for x and y to get the simultaneous solution of each set of equations.

1. $5y + 6x = 58$
   $2y - 3x = 7$
   $x =$ ____ $y =$ _____

2. $11x + 4y = 53$
   $4x - 2y = 2$
   $x =$ ____ $y =$ _____

3. $18x - 3y = 27$
   $16x - \frac{1}{2}y = 30\frac{1}{2}$
   $x =$ ____ $y =$ _____

4. $2y - 8x = -14$
   $4y + 4x = 92$
   $x =$ ____ $y =$ _____

5. $8x - 4y = 32$
   $-2x + 12y = 146$
   $x =$ ____ $y =$ _____

Volume 6 Lesson 11 Worksheet Page 2

6. $8y + 14x = 52$
$-2y - -12x = 18$

$x =$ ____ $y =$ ____

7. $\frac{1}{2}x + \frac{4}{7}y = 7$
$8x + \frac{5}{14}y = 50\frac{1}{2}$

$x =$ ____ $y =$ ____

8. $.8x + .6y = 7$
$.2x + .3y = 2.5$

$x =$ ____ $y =$ ____

9. $\frac{1}{2}x + y = \frac{1}{2}$
$9x - 6y = 1$

$x =$ ____ $y =$ ____

Name _____Date _____

Volume 6 Lesson 12 Worksheet

1. Find the simultaneous solution for the two linear equations below.

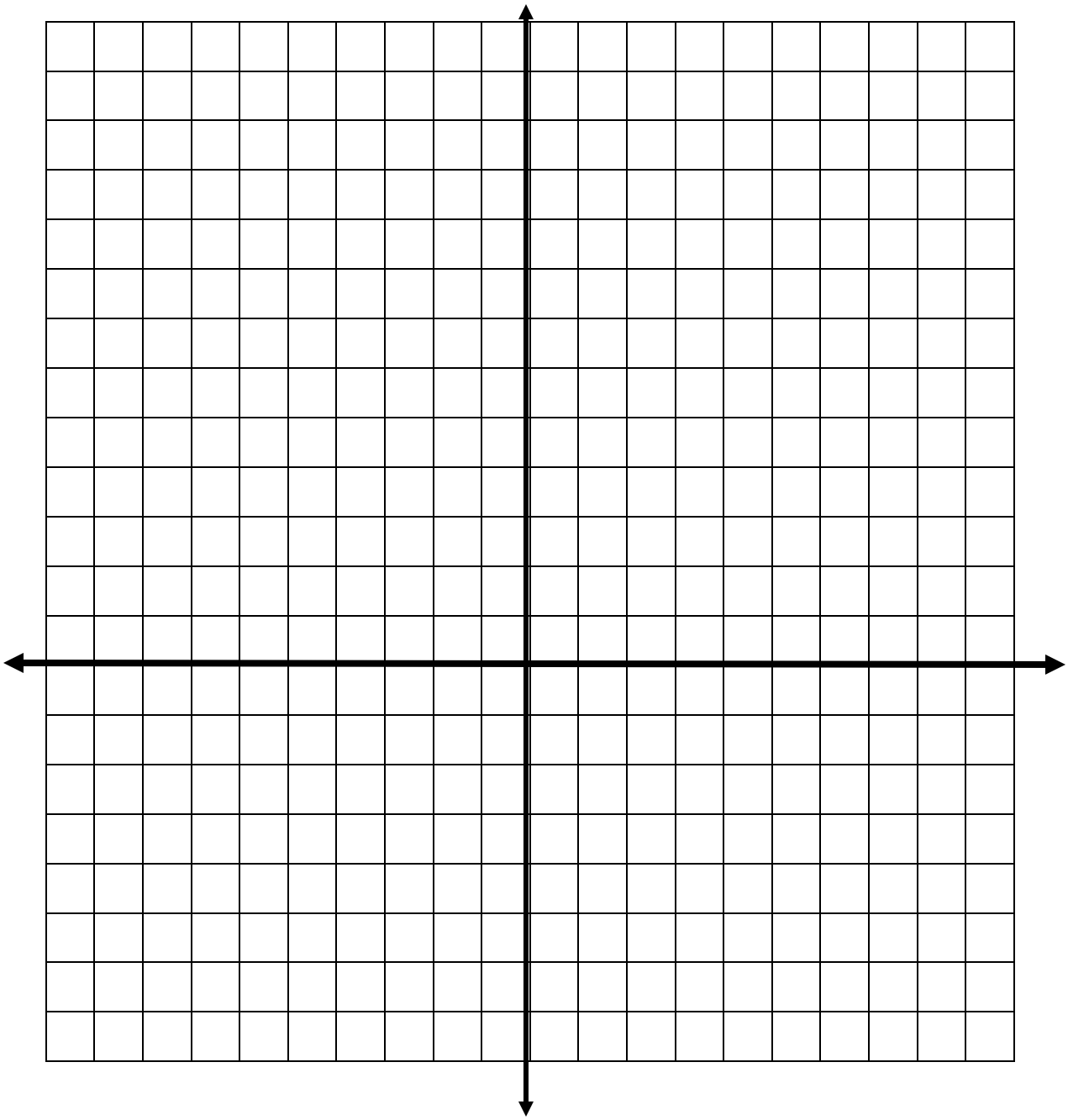
$$8x - 4y = -36$$
$$4x - 3y = -21$$

2. Find two other points for each line equation above. Plot those lines on the graph drawn on page two, to prove that your simultaneous solution is correct.

X	Y

X	Y

Volume 6 Lesson 12 Worksheet Page 2



Name _____Date _____

Volume 6 Lesson 13 Worksheet

1. Dr. Wilson, the veterinarian, applied flea drops to 32 cats today. The larger cats received 16 cubic centimeters of medication. The small cats only needed 10 cc's each. At the end of the day, Dr. Wilson had used a total of 428 cc's of flea medication. Use a System of Equations to find out how many large cats and how many small cats she treated.

2. Luke sold 19 of his video games to a comic book store owner for $192.99. The newer games were worth $11.27 each. The older games were only worth $8.25 each. Write and solve and equation to find out how many newer games and older games he sold.

Volume 6 Lesson 13 Worksheet Page 2

3. A caterer brought 64 sandwiches to the party. The large sandwiches cost $6.49 each and the small sandwiches cost $3.75 each. The total cost for all the sandwiches was $385.22. How many of each size did she bring to the party?

4. A drum set is on sale for $1,577.00. It has five drums and four cymbals. Each of the drums cost the same amount and so do each of the cymbals. Together, one cymbal and one drum cost $363.00. How much does each drum and each cymbal cost?