Solutions are at the end of this file.

Multistep Word Problems The *Student Text* includes some fairly simple two step word problems. Some students may be ready for more challenging problems. Here are a few to try, along with some tips for solving this kind of problem. You may want to read and discuss these with your student as you work out the solutions together. Again, the purpose is to stretch, not to frustrate. If you do not think the student is ready, you may want to come back to these later.

There are more multistep word problems in Lessons 21 and 27 of the *Teacher Manual*. The answers are at the end of the solutions at the back of this book.

1) David has a rectangular garden that measures 11 feet by 13 feet. He wants to plant peas in his garden. Dad said that one seed packet will be enough to fill a space 10 feet on a side. Will David's garden have enough space to plant 2 seed packets?

Although the problem asks only one question, there are other questions that must be answered first. The key to solving this is determining what the unstated questions are. Since the final question is really asking for a comparison of the available area to the needed area, the two unstated questions are: "What is the area of David's garden?" and, "What is the area needed for two seed packets?"

You might make a list of steps something like this:

1) area of garden in square feet?
2) area needed for one seed packet?
3) area needed for two seed packets?
4) compare areas to answer question

2) Rachel and Sarah started out to visit Grandma. They drove for 50 miles and stopped to rest before driving for 30 more miles. They decided to go back 10 miles to a restaurant they had seen. After leaving the restaurant, they drove 80 more miles to Grandma's house. How many miles did the girls drive on the way to Grandma's house?

Make a drawing, and this will be easier to solve!

3) Rachel and Sarah spent $8 for gasoline, $15.65 for their lunch, and $5 apiece for gifts for Grandma. Grandma gave each of them $10. If the girls left home with a total of $50, how much do they have for the return trip?

This is similar to number 1 in that you must answer other questions before you can answer the question in the problem.

Word Problems Here are a few more multistep word problems to try. You may want to read and discuss these with your student as you work out the solutions together. Again, the purpose is to stretch, not to frustrate. If you do not think the student is ready, you may want to come back to these later.

The answers are at the end of the solutions at the back of this book.

1) Scott bought three bags of candy with 75 pieces in each one. He plans to divide all the candy evenly among seven friends. How many pieces of candy will Scott have left for himself?

2) Anne earned $3 an hour baby-sitting, and $4 an hour working in the garden. Last week she did baby-sitting for 5 hours and garden work for 3 hours. How much more money does she need to buy a game that costs $35?

3) Paige had a nature collection. She had 25 acorns, 16 dried seed pods, and 8 feathers. She divided the acorns into 5 equal groups, the seed pods into 4 equal groups and the feathers into 2 equal groups. She gave her mother one group of each kind. How many separate items did her mother get?

Use after *Delta* Lesson 27

1) 65 bags of nuts are to be divided among 13 students. Each bag contains 15 nuts. How many nuts will each student receive?

2) Shane is playing a board game. For his first turn he moved ahead 3 spaces, for the second, 5 spaces and for the third, 1 space. For his next turn he had to go back 6 spaces. After that he got a card that said he could move two times the biggest forward move he had done so far. Now how many spaces from the beginning is Shane's game piece?

3) The volume of a rectangular box is 330 square inches. The length on one side of the top is 11 inches, and the height of the box is 3 inches. What is the area of the top of the box? (A drawing may help you with this one.)

4) Tom divided $360 among his six children for them to use for Christmas gifts. His daughter Kate added $20 to her portion, then used the money to buy 16 gifts that each cost the same amount. What was the price of each of Kate's gifts?

Multistep Word Problems The *Student Text* includes some fairly simple two step word problems. Some students may be ready for more challenging problems. Here are a few to try, along with some tips for solving this kind of problem. You may want to read and discuss these with your student as you work out the solutions together. The purpose is to stretch, not to frustrate. If you do not think the student is ready, you may want to come back to these later.

1) Jill bought items costing $3.45, $1.99, $6.59, and $12.98. She used a coupon worth $2.50. If Jill had $50.00 when she went into the store, how much did she have when she left?

Although the problem asks only one question, there are other questions that must be answered first. The key to solving this is determining what the unstated questions are. Since the final question is asking for the left over money, the unstated questions are: "What is the total of Jill's purchases?" and, "What was the total bill after using the coupon?"

You might make a list of questions something like this:

1) total of purchases?
2) total bill after subtracting coupon?
3) leftover money?

2) Luke and Seth started out to visit Uncle Arnie. After driving 50 miles, they saw a restaurant, and Luke wanted to stop for lunch. Seth wanted to look for something better, so they drove on for 8 miles before giving up and going back to the restaurant. After eating they traveled on for 26 more miles from the restaurant. Seth saw a sign for a classic car museum, which they decided to visit. The museum was 6 miles from their route. After returning to the main road, they drove for another 40 miles and arrived at Uncle Arnie's house. How many miles is it from Luke and Seth's house to Uncle Arnie's house? How many miles did they drive on the way there?

The key to solving this is a careful drawing. It does not have to be to scale, but should include all the parts of the journey.

3) Last week we got 3.5 inches of snow. Six-tenths of an inch melted before another storm added 8.3 inches. Since then we have lost 4.2 inches to melting or evaporation. How may inches of snow are left on the ground?

Lesson 17

1) Emily cut two circles from a sheet of colored paper measuring 8" by 12". One circle had a radius of 3 inches and the other had a radius of 2.5 inches. How many square inches of paper are left over? Is it possible to cut another circle with a 3 inch radius from the paper?

2) Tom wants to buy items costing $25.35, $50.69, and $85.96. He earns $6.50 an hour doing odd jobs. If ten percent of his income is put aside for other purposes, how many hours must he work to earn the money he needs for his purchases? Round your answer to the nearest whole hour.

3) Three tenths of the wooden toys were painted blue and one fourth of them were painted green. Half of the remaining toys were painted red and half were painted yellow. If 300 toys are blue, how many are there of each of the other colors?

Lesson 18

1) The boys ordered several pizzas for the weekend. When the first evening was over, the following amounts of pizza were left over: 1/4 of the pepperoni pizza, 1/2 of the cheese pizza, 3/4 of the mushroom pizza and 1/4 of the supreme pizza. The next morning, each boy ate the equivalent of 1/4 of a pizza for breakfast. If that finished the pizza, how many boys were there?

2) Dan read that an average snowfall of 10 inches yields 1 inch of water when melted. Very wet snow will measure 5 inches for one inch of water, and very dry snow may measure 20 inches for an inch of water. He made measurements for a storm that started with 5.3 inches of average snowfall. The precipitation changed to wet snow and dropped another 4.1 inches. The weather continued to warm up, and the storm finished with 1.5 inches of rain. What was the actual amount of water that fell during the storm? Round your answer to tenths.

3) Jim bought edging to go around a circular garden with a radius of 3 feet. Later he decided to double the diameter of the garden. How many more feet of edging must he buy?

4) One packet of flower seeds was enough to just fill the area of the smaller garden in #3. How many packets of seed are needed for the larger garden? Round each answer to the nearest square foot before continuing.

(3)

1. The ratio of the hours the Teenage Mutant Ninja Turtles spend training, to the hours they spend eating pizza is 8:3. If they spend 10 more hours per day training than eating, how many hours do they spend eating pizza?

2. Carmelo Anthony's ratio of assists per game to rebounds per game is 4:5. If he had 108 rebounds and assists last season, how many assists did he have? How many rebounds did he have?

3. Bruce Wayne splits his budget by using the ratio 13:7. For every $13 he spends on research, he donates $7 to local charities. If he spent $4,800 more on research last week than on donations, how much did he donate?

4. In college Dak Prescott had a record of 5 to 2, which represented his touchdown passes to interceptions. If in his senior year he threw 105 touchdown passes and interceptions, how many touchdowns did he throw?

5. In Mario Kart the special blocks are programmed to deliver 3 green shells for every 11 bananas. If in the last game characters received 104 more bananas than green shells, how many green shells were received?

6. When making sugar skulls we made 5 small ones for every 7 large ones we made. If we made 132 sugar skulls altogether, how many were small? How many were large?

7. On the weekend, for every 2 minutes you spend watching puppy videos, you spend 9 minutes watching regular TV. If you spent 572 minutes watching puppy videos and TV, how many minutes did you spend watching puppy videos? Watching TV?

8. The ratio of the minutes the Chargers had the football last night, to the number of minutes the Broncos had the ball was 20 to 9. If the Chargers had the ball for 88 more minutes than the Broncos last night, how many minutes did the Broncos have the ball?

Solving Problems using Proportional Reasoning

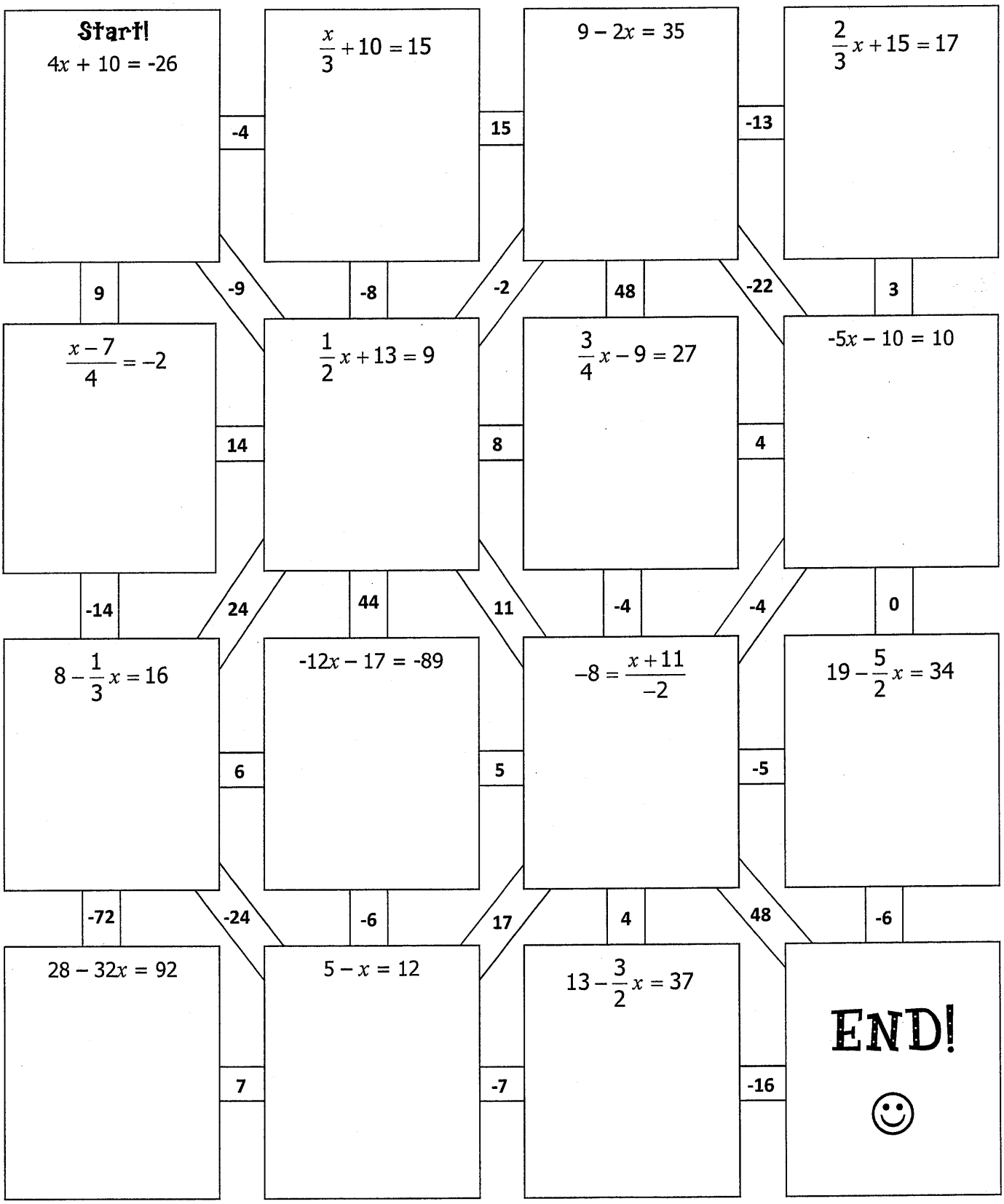
Name _____
Date _____

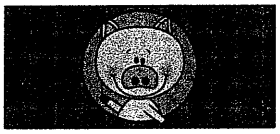
For each problem, set up a proportion. Include the units for each ratio. Then solve for the missing value and label your answer with appropriate units. Round answers to the nearest tenth.

	Proportion with Units	Work + Solution
1. Sam raked 3 bags of leaves in 16 minutes. If he continues to work at the same rate, about how long will it take him to rake 5 bags?	_____ = _____	
2. Amy earned $25 after babysitting for 3 hours. If she always charges the same rate, how much will she make after working for 7 hours?	_____ = _____	
3. A 2-month membership to the gym costs $125. Jim would like to be a member for 8 months. What is the total amount he will pay for 8 months?	_____ = _____	
4. Bobby drove 110 miles, and his car used up 5 gallons of gas. How many miles can he drive with 16 gallons of gas?	_____ = _____	
5. Mary ran 2 miles in about 23 minutes. If she continued at the same pace, how long will it take her to run 10 miles?	_____ = _____	

Two-Step Equation Maze!

Directions: Use your solutions to navigate through the puzzle. **SHOW ALL STEPS!!!!**



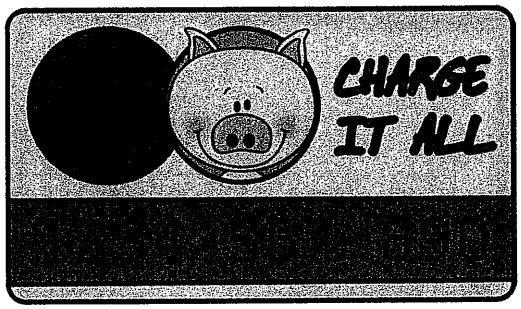


Let's Make A Deal!

Your objective is to find the best deal when given two options. Bubble in the option that is the best deal and write the unit rate of that option on the line provided.

Option 1	VS.	Option 2	Best Deal
Sargento Cheese Slices $2.48 for 10 Slices	VS.	Velveeta Cheese Slices $3.18 for 12 Slices	O Option 1 O Option 2 Unit Rate: _____
Oreos $2.98 for 15.5oz	VS.	Chips Ahoy $2.50 for 14oz	O Option 1 O Option 2 Unit Rate: _____
Doritos $4.39 for 11.5oz	VS.	Cheetos $2.24 for 9.75oz	O Option 1 O Option 2 Unit Rate: _____
Sarah Lee Turkey $6.58 per lb	VS.	Butterball Turkey $11.16 for 2lb	O Option 1 O Option 2 Unit Rate: _____
Coca-Cola $1.29 for 1.25L	VS.	Pepsi $2.49 for 2L	O Option 1 O Option 2 Unit Rate: _____

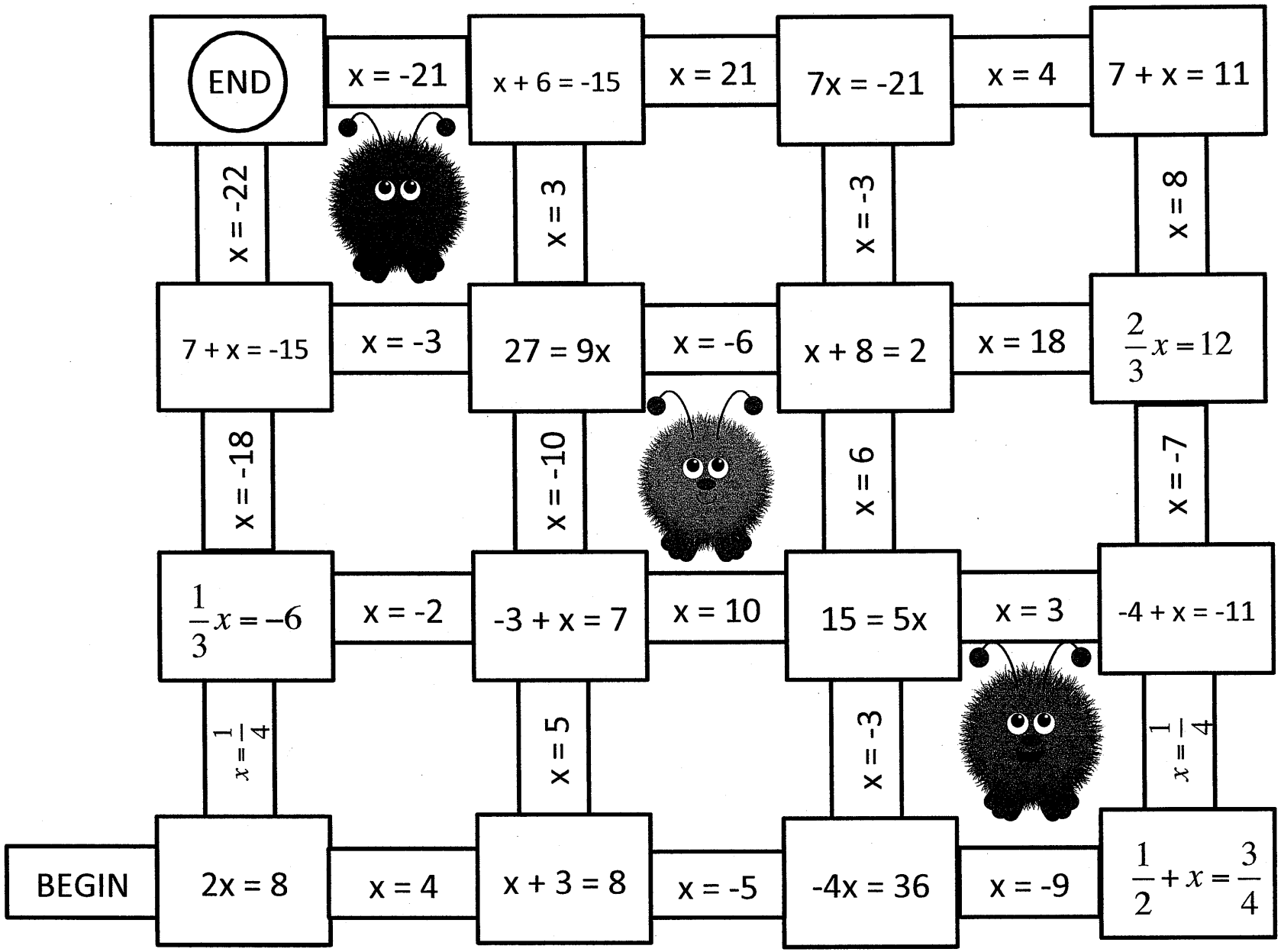
Option 1	VS.	Option 2	Best Deal
Cheerios $3.68 for 17oz	VS.	Apple Jacks $2.89 for 13oz	O Option 1 O Option 2 Unit Rate: _____
Kidney beans $1.18 per lb	VS.	Lima beans $2.13 for 2lb	O Option 1 O Option 2 Unit Rate: _____
Goldfish Crackers $1.99 for 7.2oz	VS.	Cheese-Its $2.70 for 13.7oz	O Option 1 O Option 2 Unit Rate: _____
Daisy Sour Cream $1.49 for 8 oz	VS.	Kraft Sour Cream $2.55 for 16oz	O Option 1 O Option 2 Unit Rate: _____
Crayola Crayons $6.97 for 120	VS.	Rose Art Crayons $1.53 for 24	O Option 1 O Option 2 Unit Rate: _____

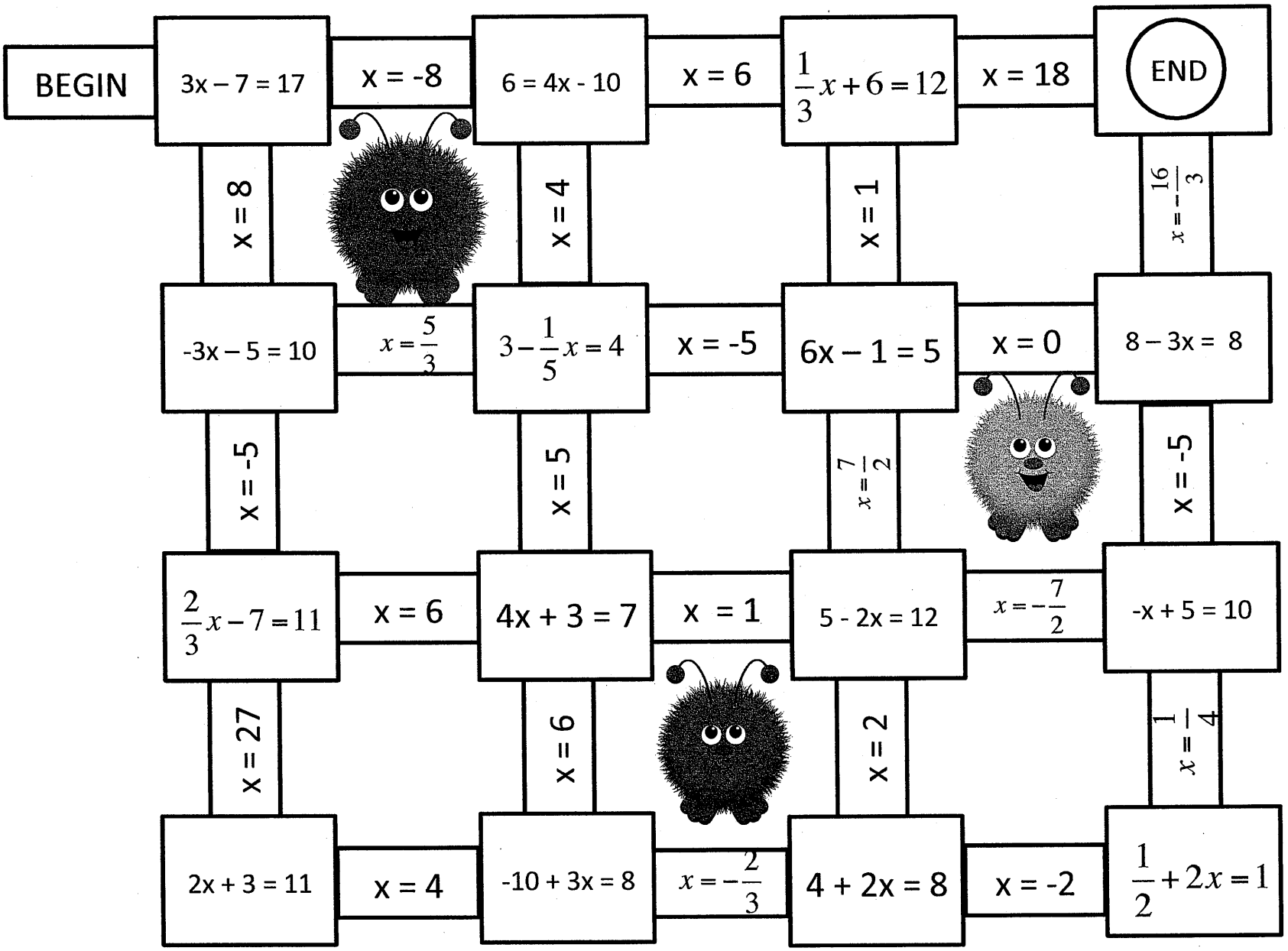


Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples	
One-Step Equations	**1.** $m + 12 = 10$	**2.** $-2 = g - 9$
	3. $-7y = -91$	**4.** $\frac{a}{9} = -4$
Fractions To "get rid" of a fraction, multiply by the _____!	**5.** $\frac{2}{3}x = 10$	**6.** $\frac{4}{9}w = -8$
	7. $-\frac{6}{5}k = 12$	**8.** $-\frac{1}{2}m = -9$
Two-Step Equations	**To Solve a Two-Step Equation:** 1. Undo the **Addition/Subtraction** (to remove constant term) 2. Undo the **Multiplication/Division** (to remove coefficient)	
	9. $6x + 8 = 50$	**10.** $2n - 5 = 11$
	11. $13 = -4k + 9$	**12.** $7 - 3y = 34$

	13. $\frac{x}{2} - 7 = 9$	**14.** $11 = \frac{c}{-5} + 8$
	15. $\frac{3}{5}x + 22 = 28$	**16.** $-\frac{1}{3}m + 1 = -7$
	17. $-10 + \frac{7}{4}p = -38$	**18.** $15 = 9 - \frac{1}{2}x$
Watch Out!	**The examples below are different in that the multiplication/division is done FIRST, followed by the addition/subtraction.**	
	19. $\frac{x+11}{8} = -3$	**20.** $\frac{n-5}{-2} = -7$
	21. $1 = \frac{a-13}{-6}$	**22.** $4 = \frac{w+8}{9}$


END
x = -21
x + 6 = -15
x = 21
7x = -21
x = 4
7 + x = 11
x = -22
x = 3
x = -3
x = 8
7 + x = -15
x = -3
27 = 9x
x = -6
x + 8 = 2
x = 18
$\frac{2}{3}x = 12$
x = -18
x = -10
x = 6
x = -7
$\frac{1}{3}x = -6$
x = -2
-3 + x = 7
x = 10
15 = 5x
x = 3
-4 + x = -11
$x = \frac{1}{4}$
x = 5
x = -3
$x = \frac{1}{4}$
BEGIN
2x = 8
x = 4
x + 3 = 8
x = -5
-4x = 36
x = -9
$\frac{1}{2} + x = \frac{3}{4}$


BEGIN
3x – 7 = 17
x = -8
6 = 4x - 10
x = 6
$\frac{1}{3}x + 6 = 12$
x = 18
END
x = 8
x = 4
x = 1
$x = -\frac{16}{3}$
-3x – 5 = 10
$x = \frac{5}{3}$
$3 - \frac{1}{5}x = 4$
x = -5
6x – 1 = 5
x = 0
8 – 3x = 8
x = -5
x = 5
$x = \frac{7}{2}$
x = -5
$\frac{2}{3}x - 7 = 11$
x = 6
4x + 3 = 7
x = 1
5 - 2x = 12
$x = -\frac{7}{2}$
-x + 5 = 10
x = 27
x = 6
x = 2
$x = \frac{1}{4}$
2x + 3 = 11
x = 4
-10 + 3x = 8
$x = -\frac{2}{3}$
4 + 2x = 8
x = -2
$\frac{1}{2} + 2x = 1$