Mystery Numbers

Home Link 7-1

NAME DATE TIME

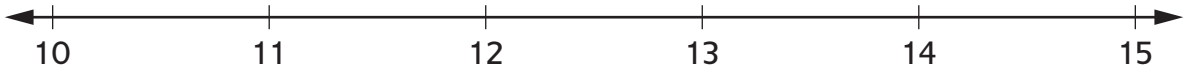
SRB 210-211

(1) Gabe and Aurelia play *Number Squeeze*.
Gabe represents his mystery number with the variable *f*.

a. Represent each of the two *Number Squeeze* clues with an inequality.
Describe the solution sets to the inequalities.

Clue	Subtract 5 from *f* and the answer is greater than 7.	The number *f* is less than 13.
Inequality		
Solution Set		

b. Graph the solution set that makes both inequalities true.



c. List three numbers that could be the mystery number.
Check that they are in the solution sets for both inequalities.

Possible numbers *f* could be: _____

(2) **a.** Write two inequalities that could be clues for the following graph:

Inequality A: _____ Inequality B: _____

b. Write a different set of inequalities that could also represent the graph in Problem 2a.

Inequality C: _____ Inequality D: _____

Practice Evaluate.

(3) $|-4| =$ _____ (4) $|-0.5| =$ _____ (5) $|z| = 6$; $z =$ _____

Solving Problems with Inequalities

Home Link 7-2

NAME DATE TIME

Fast and Healthy sells bags of trail mix. Customers choose the ingredients to put in their trail mix. The bag is weighed at the checkout counter to determine the cost.

SRB 210-211

Fast and Healthy charges $5 per pound. They also sell granola bars for $1.50 each.

(1) Li has $9 to spend on trail mix. How many pounds of trail mix can she buy?
Let y be the number of pounds of trail mix.

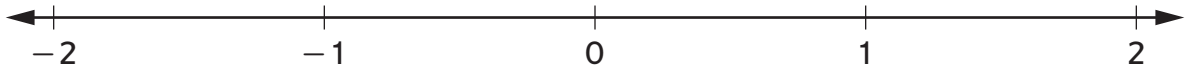
a. Inequality for the situation: _____

b. Solution set for y using set notation: _____

_____

c. Inequalities for the values of y: _____

d. Graph the solution set for y that makes both inequalities true.



(2) The price for a plain smoothie is $2.00. Each additional ingredient costs $0.75.
Li has $5. Let m be the number of ingredients.
How many ingredients can Li add to a plain smoothie?

a. Inequality for the situation: _____

b. Solution set for m using set notation: _____

_____

c. Inequalities for the whole number values of m: _____

d. Graph the solution set for m that makes both inequalities true.

(3) Describe how the graph in Problem 2d represents the solution to the problem.

_____

Practice

Solve.

(4) $\frac{2}{3} * \_\_\_\_\_ = 1$ (5) $\_\_\_\_\_ * 5 = 1$ (6) $3\frac{3}{4} * \_\_\_\_\_ = 1$

Using Spreadsheets

Home Link 7-3 SRB 228-230

NAME DATE TIME

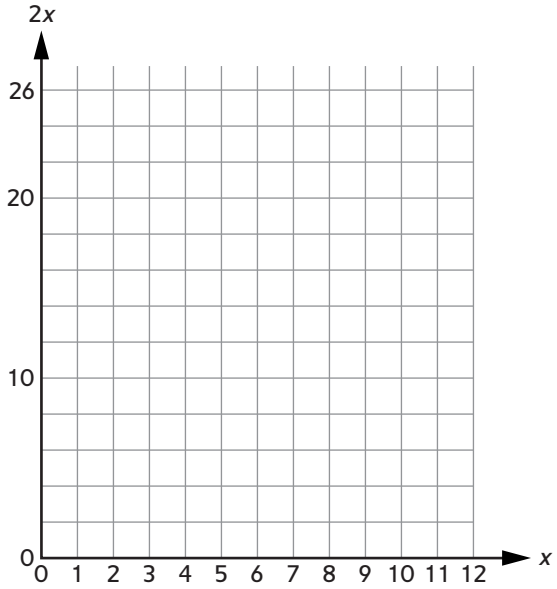
(1) Complete the spreadsheet at the right. If you have a spreadsheet program at home, write formulas and use the "fill down" feature to do the calculations. If not, do the calculations yourself with a calculator.

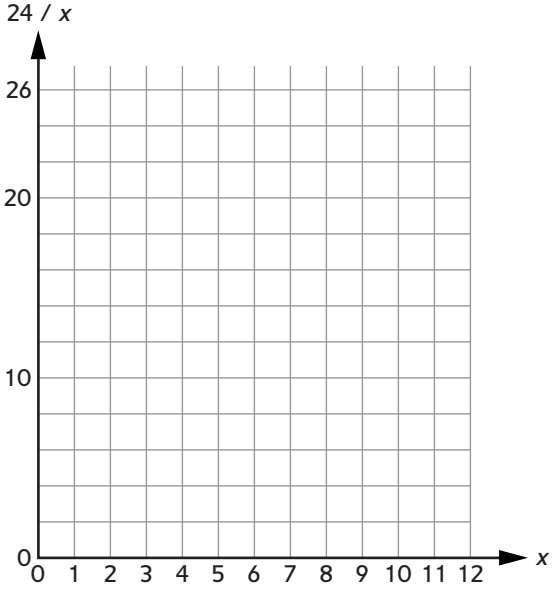
Boxes

B3 fx

	A	B	C
1	Multiplication versus Division		
2	x	$2x$	$24 / x$
3	1		
4	2		
5	3		
6	4		
7	6		
8	8		
9	12		
10	1.2		
11	3.2		
12	5		

(2) Use the data in the spreadsheet to graph the number pairs for x and $2x$ on the first grid. Then graph the number pairs for x and $24 / x$ on the second grid. Connect the plotted points.





(3) Describe two differences between the two graphs in Problem 2.

_____

_____

Practice Find the GCF.

(4) GCF (34, 42) = _____ (5) GCF (49, 560) = _____ (6) GCF (30, 75) = _____

Using a Spreadsheet

Home Link 7-4

NAME DATE TIME

Use a spreadsheet program or your calculator to complete the page.

SRB 229-230

① Jenna has a large jar full of pennies, nickels, and dimes. She has 100 coins. She has 20 more nickels than pennies and half as many dimes as nickels. Enter formulas in the spreadsheet to calculate the number of coins and their value.

	A	B	C	D
1	**Pennies**	**Nickels**	**Dimes**	**Total**
2	Test Number			

a. Coins: _____

b. Value of coins: _____

② To solve Problem 1a, why might you start with an even number of pennies?

_____

_____

③ What formula would you use to find the total value of the coins?

_____

④ Use formulas to find the greatest four consecutive numbers whose sum is less than 1,000. _____

	A	B	C	D	E
1	**1st Number**	**2nd Number**	**3rd Number**	**4th Number**	**Sum**
2	Test Number				

Practice Divide.

⑤ $\frac{7}{8} \div \frac{1}{8} =$ _____ ⑥ $2\frac{1}{4} \div \frac{7}{8} =$ _____ ⑦ _____ $= 1\frac{2}{3} \div 3$

Which Activity Burns the Most Calories?

Home Link 7-5

NAME DATE TIME

SRB 49-50

(1) The amount of energy a food will produce when it is digested by the body is measured in a unit called the **calorie.**
The table shows the number of calories used per minute and per hour by the average sixth grader in Oakwood Junior High for various everyday activities. Complete the table. Use the information for Problems 2–3.

Calorie Use by the Average Sixth Grader		
Activity	**Calories/Minute**	**Calories/Hour**
Sleeping	0.7	42
Studying, Writing, Sitting	1.2	
Standing	1.3	
Dressing, Undressing		90
Watching TV	1.0	
Eating, Talking		72

(2) Kori spent 2 hours and 25 minutes doing one of the listed activities.
He burned 145 calories. Which activity was he doing? _____

(3) Kori sleeps about $8\frac{1}{2}$ hours per night and spends about 7 hours each school day eating, talking, and sitting. Does he burn more calories sleeping or at school? Explain.

_____

_____

(4) On Monday Edgar ran for 29 minutes and burned 270 calories.
On Wednesday he biked for 25 minutes and burned 207 calories.
On Friday he played soccer for 13 minutes and burned 124 calories.
Which activity burns the most calories per minute? Explain how you know.

_____

_____

_____

Practice Find the LCM.

(5) LCM (12, 48) = _____ (6) LCM (14, 21) = _____ (7) LCM (8, 25) = _____

Marathon Mathematics

Home Link 7-6

NAME DATE TIME

SRB 49-50

In 2006, Deena Kastpor set the U.S. women's record for both the half marathon (13.1 miles) and the full marathon (26.2 miles).
Her time for the half marathon was 1 hour 7 minutes 34 seconds.
Her time for the full marathon was 2 hours 19 minutes 36 seconds.

(1) Compare her rates (seconds per mile) for the two races.

a. Which rate was faster? _____

b. How much faster is her rate for that race?

_____

_____

_____

_____

(2) If Deena could run a full marathon at her half-marathon pace, about how long would it take her to run the full marathon?

_____

(3) Which record do you think would be easier to break: half marathon or full marathon? Explain.

_____

_____

_____

Practice Find the value of x that makes each number sentence true.

(4) $6x = 54$ _____ (5) $x - 14 = 152$ _____ (6) $300 = x + 199$ _____

Doing the Dishes

Home Link 7-7

NAME DATE TIME

SRB 43-50

(1) Ronald's family washes dishes by hand.
Hand washing the dinner dishes takes about 10 minutes, and the faucet is running the whole time.
The kitchen faucet runs at about 2.2 gallons per minute.

a. In one evening, about how much water does Ronald's family use to wash dinner dishes? _____

b. In seven evenings, about how much water does the family use to wash dishes? _____

(2) A high-efficiency faucet runs at about 1.5 gallons per minute.

a. About how much water would the family save each time they wash their dinner dishes if they replace their old faucet with a high-efficiency faucet? _____

b. About how much water would they save washing dinner dishes in a year (365 days)? _____

(3) A high-efficiency dishwasher uses about 4 gallons of water per load. The family would run the dishwasher 4 times per week to do their dinner dishes. Should they install a high-efficiency faucet (see Problem 2) or use the dishwasher to save water? Explain.

_____

_____

Try This

(4) A typical circular pool that is 18 feet across and 4 feet deep requires about 3,800 gallons of water. Ronald's parents agree to get this pool if they cut their water usage enough to fill the pool. If they use the dishwasher, can Ronald's family save enough water during the year to justify getting the pool? Explain.

_____

_____

Practice Write whether each number sentence is true or false.

(5) $4 * 7 > 6 * 3 + 4$ _____

(6) $15 + 9 \leq 6 * 4$ _____

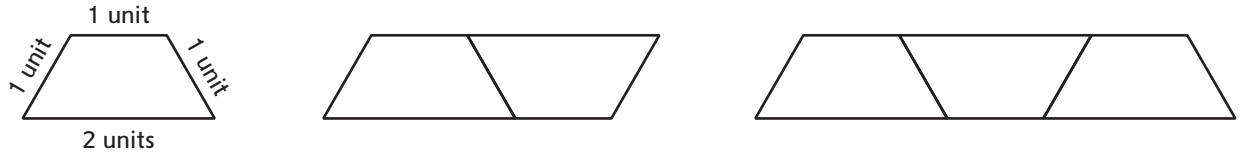
Representing Patterns in Different Ways

Home Link 7-8

NAME DATE TIME

Use the pattern below to answer the questions.
Hint: The perimeter of one trapezoid is 5, not 4.

SRB 225



Step 1 Step 2 Step 3

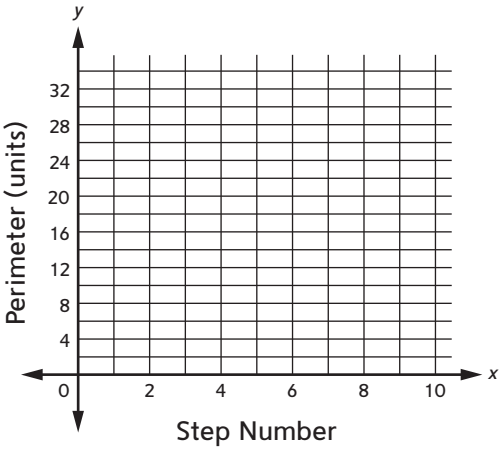
(1) In the space below, sketch and label Step 4 and Step 5 of the sequence.

(2) Complete the table, and record an equation to represent the rule for finding the perimeter.

Rule: _____

Step Number (x)	Perimeter (y) (units)
1	
2	
3	
4	
5	
10	

(3) Use the values in the table from Problem 2 as the x- and y-coordinates for points. Graph the points on the coordinate grid.



Practice

Evaluate.

(4) 15% of 80 = _____ (5) 45% of 200 = _____ (6) 85% of 2,200 = _____

Maximum Heart Rate

Home Link 7-9

NAME DATE TIME

One way you can tell whether you are exercising too much, too little, or just the right amount is to check your heart rate. Calculate the number of beats per minute. The ideal average maximum heart rate is calculated by subtracting your age from 220.

SRB 221-222

1. Write an equation that represents the rule for calculating your ideal maximum heart rate. Rule: _____

2. Use your rule to complete the table at the right with the beats per minute.

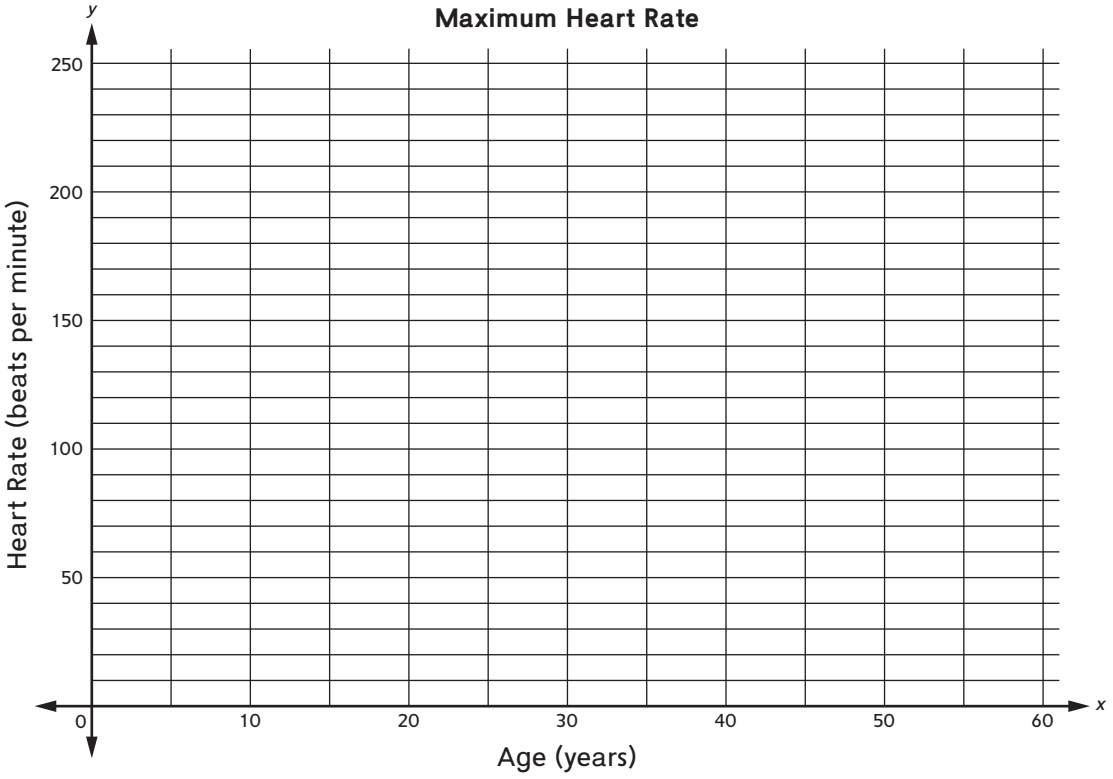
Age (x)	Max. Heart Rate (y)
5	
12	
20	
45	
60	

3. Explain how you know which variable is independent and which is dependent.

_____

_____

4. Graph the values in the table from Problem 2 as the x- and y-coordinates for points.



Practice Evaluate.

5. $-(4) =$ _____

6. $-(-9) =$ _____

7. $-(-1.5) =$ _____

Comparing Tables and Graphs

Home Link 7-10

NAME DATE TIME

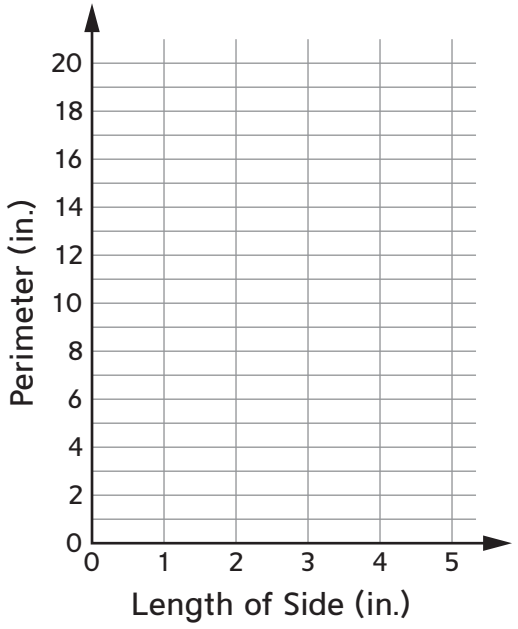
(1) Complete the tables for squares with the given side lengths.

Side Length (in.)	Perimeter (in.)
1	
2	
3	
4	
5	

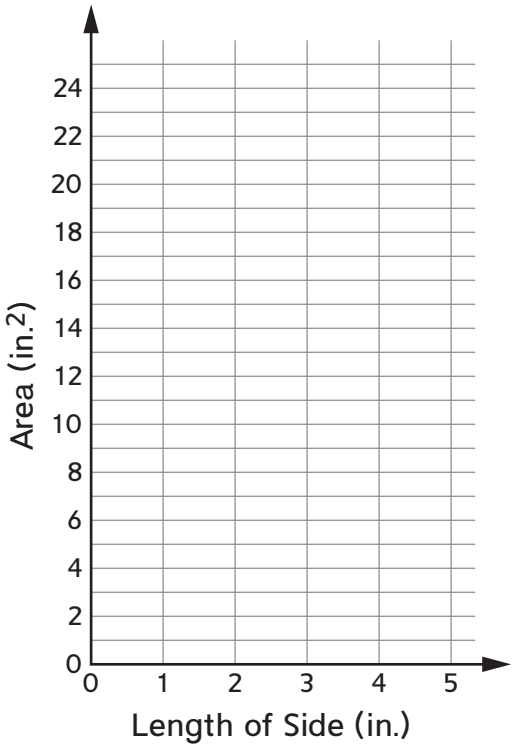
Side Length (in.)	Area ($in.^2$)
1	
2	
3	
4	
5	

(2) Use the values in the tables in Problem 1 to make graphs for perimeter and area.

Perimeter



Area



(3) Explain why the graphs look different.

_____

_____

Practice Find each number based on the given percents.

(4) 10% of n is 4; n = _____

(5) 30% of n is 18; n = _____

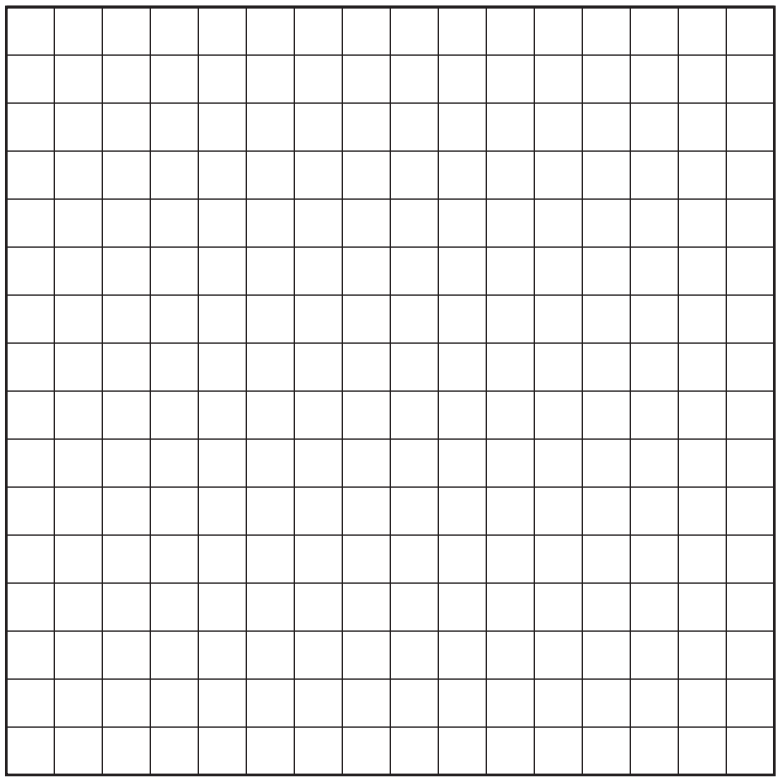
Mystery Graphs

Home Link 7-11

NAME DATE TIME

(1) Create a mystery graph on the grid below. Be sure to label the horizontal and vertical axes. Describe the situation that goes with your graph on the lines provided.

SRB 223-224



Practice Compute. Use the back of the page to do the computation.

(2) $3\overline{)432}$

(3) $12\overline{)2{,}412}$

(4) $5\overline{)1{,}325}$