Lesson 5-3 – Similar Figures & Scale Drawings

Objectives:

- Students will divide positive integers from the multiplication table without remainders, as evidenced by them passing one-minute quizzes.
- Students will solve proportions that contain a variable, as evidenced by them completing a warm-up worksheet where they do so.
- Students will find missing lengths of similar figures, as evidenced by them completing a homework assignment where they do so.
- Students will determine map distances and actual distances from scale drawings, as evidenced by them completing a homework assignment where they do so.

Materials:

- Unit calendar transparency
- Minute Quiz 5-3
- Warm-up 5-3
- Notes #5-3 and Homework #5-3 (front and back)
- Notes #5-3 Teacher's Edition

Do Now:

- Park stuff
- Work on warm-up
- Get ready for minute quiz

Homework:

- Homework #5-3
- 7 hours of ALEKS due Friday

Time	Activity
Before Bell	**AGENDA, DO NOW, AND WARM-UPS** Write the **agenda** and the **do now** on the board. As students enter the classroom, shake their hands and direct them to follow the directions listed for the "do now."
10 min	**MINUTE QUIZ, WARM-UP, ATTENDANCE, AND HOMEWORK COLLECTION** **Minute Quiz and Warm-up** When the bell rings, quickly go around and put the **minute quiz** on each student's desk, face down. Then, start everyone on the quiz at the same time and give everyone one minute. Students should work on the warm-up when they're done with the minute quiz. After the minute is over, have a student collect the minute quizzes and give them to the teacher's aide (TA) to grade. **Attendance and Collect Homework** While students work on the warm-up, take **attendance** and have the TA collect **homework** & stamp homework checkers.
5 min	**ANNOUNCEMENTS** Explain to students that you have a couple announcements to make. **ALEKS** Ask students, *The first announcement has to do with ALEKS. This week, how many hours of ALEKS do you need to have by Friday?* Point to the homework assignment that indicates the answer. *[Seven.] Again, we're just adding one hour a week.* **Unit Overview** *The second announcement is to describe what we're doing today.* Put the unit calendar transparency on the overhead. *Last time, we learned about ratios and proportions, and we solved some real-life problems with them. Today, we're going to continue using ratios and proportions to solve problems involving similar shapes and scale drawings. Today's lesson is particularly important for those interested in engineering or architecture.*
25 min	**LESSON: SIMILAR FIGURES & SCALE DRAWINGS** Go through "Notes 5-3." Afterwards, have the TA go around and stamp warm-up & notes checkers.

35 min	**CLASSWORK & ALEKS** **Classwork** Students must complete problem 1 on their homework assignment before working on ALEKS. This is to ensure that students will be able to do the rest of the problems before they leave class. **ALEKS** When students finish their classwork, they should work with **ALEKS**. Use this student work time to **return graded homework**.
5 min	**CLEAN UP** Students must check the laptops with the teacher or the TA before putting them away. After putting the laptops away, students should pack up, sit in their seats, and wait to be dismissed by the teacher (not by the bell). Make sure students push in their chairs as they leave.

Numeracy
Minute Quiz 5-3 A

Name:
Date: Period:

Solve the following division problems. You have exactly one minute!

22 ÷ 2 =	30 ÷ 6 =	24 ÷ 12 =
50 ÷ 10 =	35 ÷ 5 =	10 ÷ 5 =
15 ÷ 5 =	10 ÷ 1 =	81 ÷ 9 =
60 ÷ 5 =	44 ÷ 4 =	21 ÷ 3 =

Numeracy
Minute Quiz 5-3 A

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Numeracy
Minute Quiz 5-3 B

Name:
Date: Period:

Solve the following division problems. You have exactly one minute!

12 ÷ 4 =	44 ÷ 11 =	24 ÷ 2 =
4 ÷ 4 =	88 ÷ 11 =	60 ÷ 10 =
12 ÷ 2 =	72 ÷ 9 =	24 ÷ 8 =
22 ÷ 11 =	8 ÷ 8 =	1 ÷ 1 =

Numeracy
Minute Quiz 5-3 B

Name:
Date: Period:

Solve the following division problems. You have exactly one minute!

12 ÷ 4 =	44 ÷ 11 =	24 ÷ 2 =
4 ÷ 4 =	88 ÷ 11 =	60 ÷ 10 =
12 ÷ 2 =	72 ÷ 9 =	24 ÷ 8 =
22 ÷ 11 =	8 ÷ 8 =	1 ÷ 1 =

Numeracy
Minute Quiz 5-3 B

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Date: Period:

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4 ÷ 4 =	88 ÷ 11 =	60 ÷ 10 =
12 ÷ 2 =	72 ÷ 9 =	24 ÷ 8 =
22 ÷ 11 =	8 ÷ 8 =	1 ÷ 1 =

Numeracy
Minute Quiz 5-3 C

Name:
Date: Period:

Solve the following division problems. You have exactly one minute!

80 ÷ 8 =	32 ÷ 8 =	8 ÷ 2 =
84 ÷ 12 =	96 ÷ 8 =	55 ÷ 11 =
12 ÷ 6 =	12 ÷ 4 =	7 ÷ 7 =
96 ÷ 8 =	35 ÷ 7 =	66 ÷ 6 =

Numeracy
Minute Quiz 5-3 C

Name:
Date: Period:

Solve the following division problems. You have exactly one minute!

80 ÷ 8 =	32 ÷ 8 =	8 ÷ 2 =
84 ÷ 12 =	96 ÷ 8 =	55 ÷ 11 =
12 ÷ 6 =	12 ÷ 4 =	7 ÷ 7 =
96 ÷ 8 =	35 ÷ 7 =	66 ÷ 6 =

Numeracy
Minute Quiz 5-3 C

Name:
Date: Period:

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84 ÷ 12 =	96 ÷ 8 =	55 ÷ 11 =
12 ÷ 6 =	12 ÷ 4 =	7 ÷ 7 =
96 ÷ 8 =	35 ÷ 7 =	66 ÷ 6 =

Numeracy | Name:
Warm-up 5-3 | Date: | Period:

Solve each proportion by finding the missing piece.

1) $\frac{x}{22} = \frac{4}{11}$

2) $\frac{z}{42} = \frac{25}{70}$

3) $\frac{4}{h} = \frac{8}{10}$

4) $\frac{4}{16} = \frac{s}{8}$

Numeracy | Name:
Warm-up 5-3 | Date: | Period:

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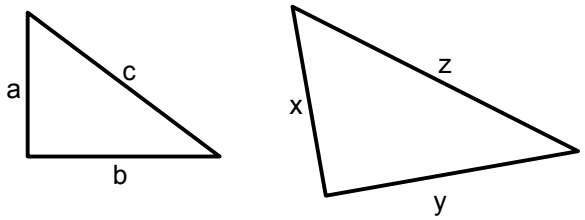
Numeracy | Name: **Teacher's Edition**
Notes #5-3 – Similar Figures & Scale Drawings | Date: | Period:

Similar Figures

Similar figures have the same shape, but not necessarily the same size.

Ex:

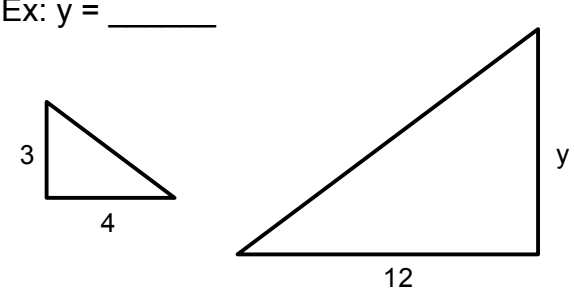


Similar figures have corresponding sides. Corresponding sides are matching sides that are in the same spot in a figure.

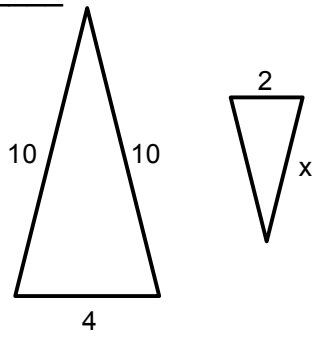
Ex: In the previous example, a and x are corresponding sides.
b and y " " "
c and z " " "

★ In similar figures, corresponding sides are proportional.

Ex: y = _____



Ex: x = _____



Scale Drawings

A scale drawing is an enlarged or reduced drawing of something.

The scale of a drawing is the ratio of a distance in the drawing to the actual distance.

Ex: The scale of the map to the left is 1 inch to 44 miles.

a) About how far is it from Santa Rosa to Sacramento?

Map distance = 1.5 in.
Answer: 66 miles

b) The actual distance from Sacramento to San Jose is about 121 mi. What is the approximate map distance between these two cities?

Answer: 2.75 in

Numeracy Name:
Notes #5-3 – Similar Figures & Scale Drawings Date: Period:

Similar Figures
Similar figures _____.

Ex:

Similar figures have _____. Corresponding sides are _____ that are _____.

Ex: In the previous example, _____ and _____ are corresponding sides.
_____ and _____ " " "
_____ and _____ " " "

★ In similar figures, _____.

Ex: y = _____ Ex: x = _____

Scale Drawings
A scale drawing is _____.

The scale of a drawing is _____.

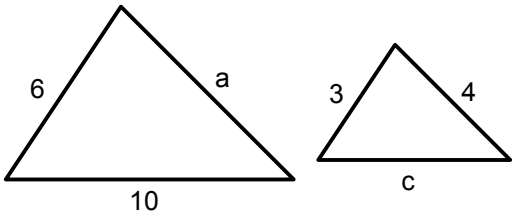
Ex: The scale of the map to the left is _____.
a) About how far is it from _____ to _____?

b) The actual distance from _____ to _____ is about _____. What is the approximate _____ between these two cities?

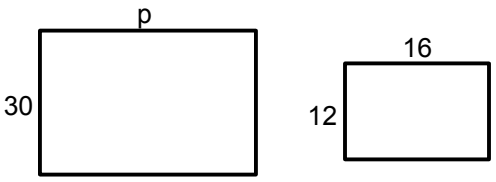
Numeracy Name:
Homework #5-3 – Similar Figures & Scale Drawings Date: Period:

Each of the following pairs of figures are similar. Find the missing lengths.

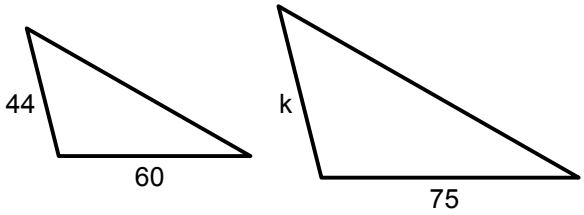
1. a = _____ , c = _____



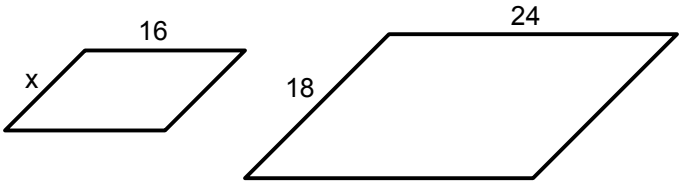
2. p = _____



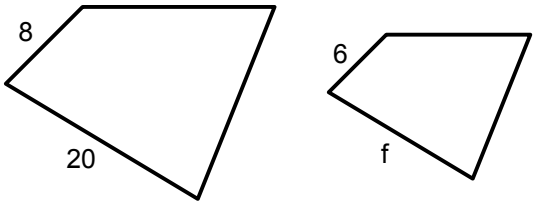
3. k = _____



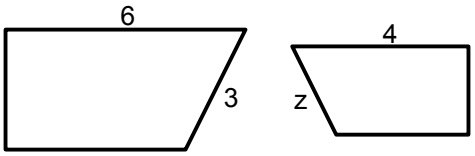
4. x = _____



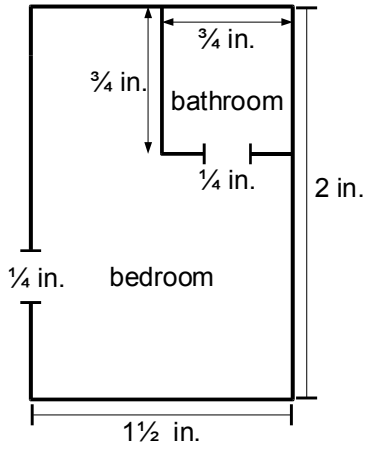
5. f = _____



6. z = _____



In the following scale drawing, a 2 inch length represents an actual length of 20 feet. Answer the following questions (the answers may be fractions or decimals).



7. What is the scale of the drawing?

8. What are the actual dimensions of the bathroom?

9. What is the actual width of the doorways?

10. What is the actual area of the bedroom?