**LESSON 17—NOTES**

**SIMILAR FIGURES & SCALE FACTOR**

**SIMILAR FIGURES**—FIGURES THAT ARE THE SAME SIZE, BUT NOT NECESSARILY

 THE SAME SIZE.

\*\*\*\*\*THEY HAVE CORRESPONDING (MATCHING) ANGLES THAT ARE CONGRUENT

 AND CORRESPONDING SIDES THAT ARE PROPORTIONAL.

EX: ARE ***TRIANGLE ABC*** AND ***TRIANGLE DEF*** SIMILAR?

 **A**

 **D**

 **3 ft. 4 ft.**

 **1.5 ft. 2 ft.**

 **B 5 ft. C E 2.5 ft. F**

THEY HAVE ANGLES THAT CORRESPOND AND SIDES THAT ARE

 PROPORTIONAL, SO YES, THEY ARE SIMILAR.

EX: THESE TWO RECTANGLES ARE SIMILAR. USE WHAT YOU KNOW ABOUT

 SIMILARITY AND PROPORTIONS TO FIND ***X***.

 **8 in. 12 in.**

 **x**

 **20 in.**

 SET UP A PROPORTION WITH THE CORRESPONDING SIDES. COMPARE

 THE LENGTH AND WIDTH OF EACH RECTANGLE.

 ALL EQUILATERAL TRIANGLES, SQUARES, AND CIRCLES ARE SIMILAR!!

EX: PHILLIP IS TRYING TO FIGURE OUT THE HEIGHT OF THE FLAGPOLE IN FRONT

 OF THE SCHOOL. PHILLIP KNOWS THAT HE IS 6 FOOT TALL. AT NOON, THE

SHADOW THAT HE WAS CASTING WAS 2 FEET LONG. THE SHADOW ON THE FLAGPOLE AT THE SAME TIME WAS 6 FEET LONG. WHAT IS THE HEIGHT OF THE FLAGPOLE?

 1. DRAW A PICTURE AND SET UP A PROPORTION COMPARING THE HEIGHTS AND SHADOWS OF PHILLIP AND THE FLAGPOLE.

EX: THE RATIO OF THE LENGTH TO THE WIDTH OF A RECTANGULAR GARDEN

 IS 6 METERS TO 4 METERS. IF A LARGER RECTANGULAR GARDEN IS BUILT,

 HOW LONG WOULD THE GARDEN BE IF THE WIDTH IS 10 METERS?

 1. DRAW A PICTURE OF EACH GARDEN AND LABEL.

 2. SET UP A PROPORTION TO SOLVE FOR THE MISSING SIDE THAT

 COMPARES THE LENGTH AND WIDTH OF EACH RECTANGLE.

**LESSON 17—NOTES—STUDENT COPY**

**SIMILAR FIGURES& SCALE FACTOR**

**SIMILAR FIGURES**—\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\*\*\*\*\*THEY HAVE CORRESPONDING (\_\_\_\_\_\_\_\_\_\_\_\_\_\_) ANGLES THAT ARE

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ AND CORRESPONDING \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

EX: ARE ***TRIANGLE ABC*** AND ***TRIANGLE DEF*** SIMILAR?

 **A**

 **D**

 **3 ft. 4 ft.**

 **1.5 ft. 2 ft.**

 **B 5 ft. C E 2.5 ft. F**

THEY HAVE ANGLES THAT CORRESPOND AND SIDES THAT ARE

 PROPORTIONAL, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

EX: THESE TWO RECTANGLES ARE SIMILAR. USE WHAT YOU KNOW ABOUT

 SIMILARITY AND PROPORTIONS TO FIND ***X***.

 **8 in. 12 in.**

 **x**

 **20 in.**

 ALL EQUILATERAL TRIANGLES, SQUARES, AND CIRCLES ARE SIMILAR!!

EX: PHILLIP IS TRYING TO FIGURE OUT THE HEIGHT OF THE FLAGPOLE IN FRONT

 OF THE SCHOOL. PHILLIP KNOWS THAT HE IS 6 FOOT TALL. AT NOON, THE

SHADOW THAT HE WAS CASTING WAS 2 FEET LONG. THE SHADOW ON THE FLAGPOLE AT THE SAME TIME WAS 6 FEET LONG. WHAT IS THE HEIGHT OF THE FLAGPOLE?

 1.

EX: THE RATIO OF THE LENGTH TO THE WIDTH OF A RECTANGULAR GARDEN

 IS 6 METERS TO 4 METERS. IF A LARGER RECTANGULAR GARDEN IS BUILT,

 HOW LONG WOULD THE GARDEN BE IF THE WIDTH IS 10 METERS?

 1.

 2.

**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Class\_\_\_\_\_\_**

**LESSON 17: SIMILAR FIGURES & SCALE FACTOR**

**NWNC!!**

**For each pair of similar figures, find the length** “***X***”.

1. 2. x

12 m 9m 15 cm

 12 cm

 x 6 m 20 cm

 \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_

3. An architect is building a model of a tennis \_\_\_\_\_\_\_\_\_\_\_\_

 court for a new client. On the model, the

 court is 6 inches wide and 13 inches long.

 An official tennis court is 36 feet wide. What

 is the length of a tennis court?

4. Mr. Hemley stands next to the Illinois Centennial \_\_\_\_\_\_\_\_\_\_\_\_

 Monument at Logan Square in Chicago and casts

 a shadow that is 18 feet long. The shadow of the

 monument is 204 feet long. If Mr. Hemley is 6 feet

 tall, how tall is the monument?

**Solve the following:**

5. Leslie had 24 ½ feet of ribbon for spirit sticks. \_\_\_\_\_\_\_\_\_\_\_\_

 She wanted to make ribbons that were 3 ½ feet

 long. How many ribbons will Leslie be able to make?

6. It took Marta 15 minutes to work 5 math problems. \_\_\_\_\_\_\_\_\_\_\_\_

 If she completed 13 math problems, how many

 minutes would it take her to finish?

7. James purchased 4 notebooks for $1.39 each, 2 pens \_\_\_\_\_\_\_\_\_\_\_\_

 for $0.79 each, a folder for $0.59 and a backpack for

 $19.99. If he gave the sales clerk two $20 bills. How

 much change did he receive back?

Solve:

8.  = \_\_\_\_\_\_\_ 9.  = \_\_\_\_\_\_ 10.  = \_\_\_\_\_\_

Fill in the following table:

|  |  |  |  |
| --- | --- | --- | --- |
| **Problem** | **Decimal** | **Fraction** | **Percent** |
| 11. | 0.3 |  |  |
| 12. | 0.65 |  |  |
| 13. |  | 7/35 |  |
| 14. |  | 8/20 |  |
| 15. |  |  | 10.5% |
| 16. |  |  | 2% |

Compare the following using <, >, or =.

17. 7/8 \_\_\_\_\_\_\_ 0.875 18. 2/3 \_\_\_\_\_\_\_\_3/5

19. 1.55 \_\_\_\_\_\_\_\_ 1.55….. 20. 1.66…… \_\_\_\_\_\_\_ 1/6