

**LESSON 6.3**

**Practice**

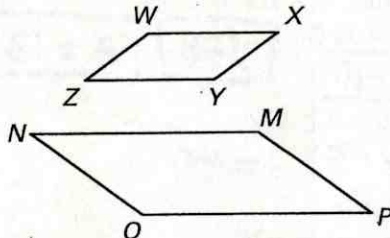
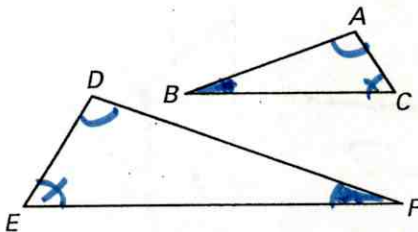
For use with pages 371-379

List all pairs of congruent angles for the figures. Then write the ratios of the corresponding sides in a statement of proportionality.

Statement of proportionality means to show the corresponding sides are proportional

1.  $\triangle ABC \sim \triangle DFE$

2.  $WXYZ \sim MNOP$



$\angle A \cong \angle D$     $\frac{AB}{DF} = \frac{BC}{FE} = \frac{AC}{DE}$   
 $\angle B \cong \angle E$   
 $\angle C \cong \angle F$

$\angle W \cong \angle M$     $\frac{WX}{MN} = \frac{XY}{NO} = \frac{YZ}{OP} = \frac{ZW}{MP}$   
 $\angle X \cong \angle N$   
 $\angle Y \cong \angle O$   
 $\angle Z \cong \angle P$

3. Multiple Choice Triangles  $ABC$  and  $DEF$  are similar. Which statement is not correct?

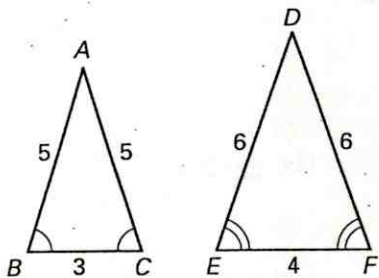
A.  $\frac{AB}{DE} = \frac{BC}{EF}$  ✓

B.  $\frac{CA}{FD} = \frac{AB}{DE}$  ✓

C.  $\angle A \cong \angle F$

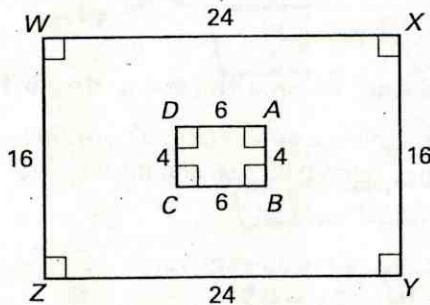
Determine whether the polygons are similar. If they are, write a similarity statement and find the scale factor.

4.



NOT Similar

5.



$\frac{16}{4} = \frac{24}{6}$

$WXYZ \sim DABC$

$\frac{4}{1} = \frac{4}{1}$  ✓

**LESSON 6.3 Practice** *continued*  
For use with pages 371-379

In the diagram,  $WXYZ \sim MNOP$ .

6. Find the scale factor of  $WXYZ$  to  $MNOP$ .

$$\frac{xy}{NO} = \frac{8}{10} = \boxed{\frac{4}{5}}$$

7. Find the values of  $x$ ,  $y$ , and  $z$ .

$$\frac{4}{5} = \frac{12}{x} \quad \frac{4x = 60}{x = 15} \quad \boxed{y = 8} \quad \boxed{z = 135^\circ}$$

8. Find the perimeter of  $WXYZ$ .

$$2(12) + 2(8) = 40$$

$$24 + 16$$

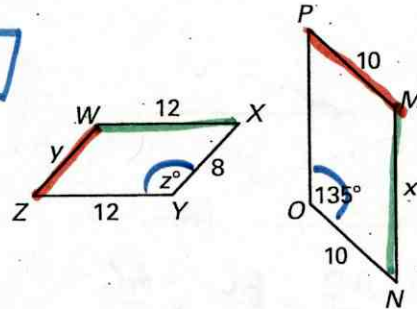
9. Find the perimeter of  $MNOP$ .

$$2(10) + 2(15) = 50$$

$$20 + 30$$

10. Find the ratio of the perimeter of  $MNOP$  to the perimeter of  $WXYZ$ .

$$\frac{50}{40} = \boxed{\frac{5}{4}}$$



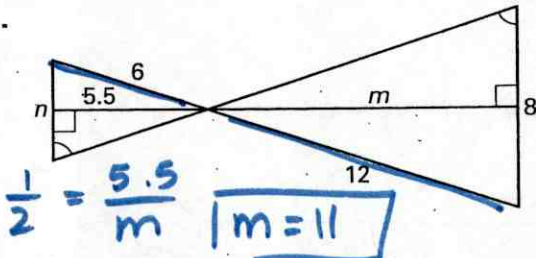
The two triangles are similar. Find the values of the variables.

11.

$$\frac{6}{12} = \frac{1}{2}$$

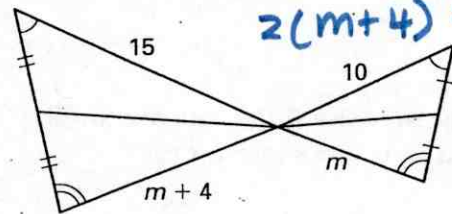
$$\frac{1}{2} = \frac{n}{8}$$

$$\boxed{n = 4}$$



$$\frac{1}{2} = \frac{5.5}{m} \quad \boxed{m = 11}$$

12.



$$\frac{3}{2} = \frac{m+4}{m}$$

$$2(m+4) = 3m$$

$$2m + 8 = 3m$$

$$\boxed{m = 8}$$

In Exercises 13 and 14, use the following information.

**Similar Triangles** Triangles  $RST$  and  $WXY$  are similar. The side lengths of  $\triangle RST$  are 10 inches, 14 inches, and 20 inches, and the length of an altitude is 6.5 inches. The shortest side of  $\triangle WXY$  is 15 inches long.

13. Find the lengths of the other two sides of  $\triangle WXY$ .

$$\frac{\text{ARST}}{\triangle WXY} = \frac{10}{15} \rightarrow \frac{2}{3}$$

$$\frac{2}{3} = \frac{14}{x} \quad \frac{2x = 42}{x = 21}$$

$$\text{and } \frac{2}{3} = \frac{20}{x} \quad \frac{2x = 60}{x = 30}$$

14. Find the length of the corresponding altitude in  $\triangle WXY$ .

$$\frac{2}{3} = \frac{6.5}{x} \quad \frac{2x = 3(6.5)}{2x = 19.5} \quad \boxed{x = 9.75}$$

15. **Multiple Choice** The ratio of one side of  $\triangle ABC$  to the corresponding side of a similar  $\triangle DEF$  is 4 : 3. The perimeter of  $\triangle DEF$  is 24 inches. What is the perimeter of  $\triangle ABC$ ?

- A. 18 inches      B. 24 inches      C. 32 inches

Ratio sides = Ratio Perimeter

$$\frac{\triangle ABC}{\triangle DEF} \quad \frac{4}{3} = \frac{x}{24}$$

$$3x = 4(24)$$

$$3x = 96$$

$$\boxed{x = 32}$$



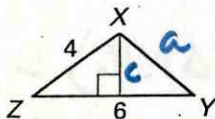
**LESSON**  
**6.3**

**Practice** *continued*  
For use with pages 371-379

In the diagram,  $\triangle XYZ \sim \triangle MNP$ .

16. Find the scale factor of  $\triangle XYZ$  to  $\triangle MNP$ .

$$\frac{xz}{mp} = \frac{4}{10} = \boxed{\frac{2}{5}}$$

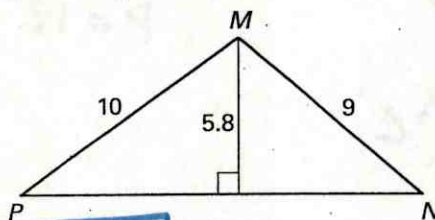


17. Find the unknown side lengths of both triangles.

$$\frac{2}{5} = \frac{a}{9} \quad 5a = 18 \quad \frac{2}{5} = \frac{b}{b}$$

$$\boxed{a = 18/5} \quad 2b = 30 \quad \boxed{b = 15}$$

*3.6*



18. Find the length of the altitude shown in  $\triangle XYZ$ .

$$\frac{2}{5} = \frac{c}{5.8} \quad 5c = 11.6$$

$$\boxed{c = \frac{11.6}{5}} = 2.32$$

19. Find and compare the areas of both triangles.

$$A(\triangle) = \frac{bh}{2}$$

$$\frac{6(2.32)}{2} \quad \frac{15(5.8)}{2} \quad \text{compare} \quad \frac{43.5}{6.96} = \frac{25}{4}$$

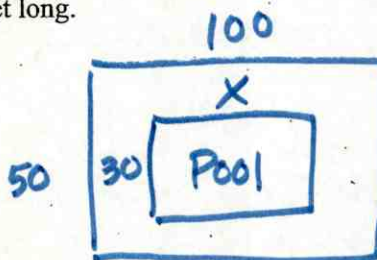
*6.96*      *43.5*

In Exercises 20-22, use the following information.

**Swimming Pool** The community park has a rectangular swimming pool enclosed by a rectangular fence for sunbathing. The shape of the pool is similar to the shape of the fence. The pool is 30 feet wide. The fence is 50 feet wide and 100 feet long.

20. What is the scale factor of the pool to the fence?

$$\frac{30}{50} = \boxed{\frac{3}{5}}$$



21. What is the length of the pool?

$$\frac{3}{5} = \frac{X}{100} \quad 5X = 300$$

$$\boxed{X = 60}$$

22. Find the area reserved strictly for sunbathing.

$$A = lw$$

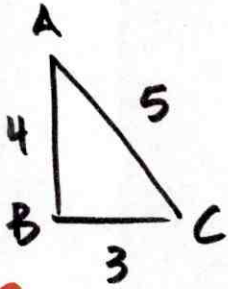
$$100(50) - 30(60)$$

$$5000 - 1800$$

$$= 3200 \text{ ft}^2$$

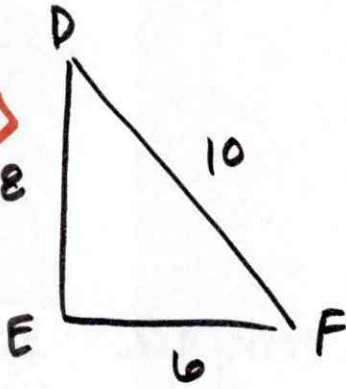
$\frac{a}{b} = \frac{2}{5}$  so  $\frac{a^2}{b^2} = \boxed{\frac{25}{4}}$   
the sides are squared

$$P(\triangle ABC) = 3 + 4 + 5$$
$$P = 12$$



$$\frac{4}{8} = \frac{1}{2}$$

$$P(\triangle DEF) = 6 + 8 + 10$$
$$P = 24$$



x2

$$\frac{12}{24} = \frac{1}{2}$$

x2