

* Do all problems. Make sure you have work for the problems with answers given.

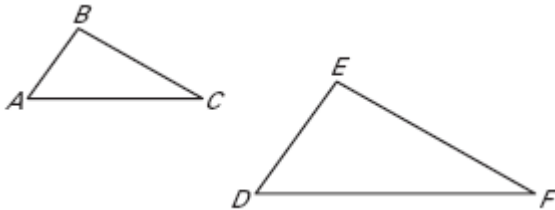
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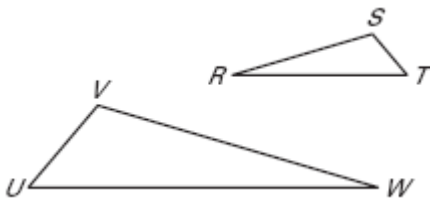
LESSON 6.1
Practice A

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

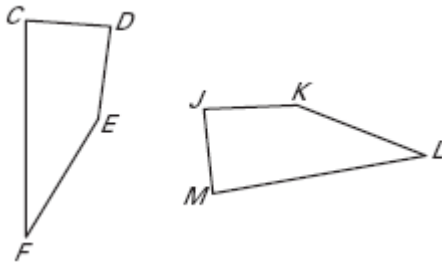
1. $\triangle ABC \sim \triangle DEF$



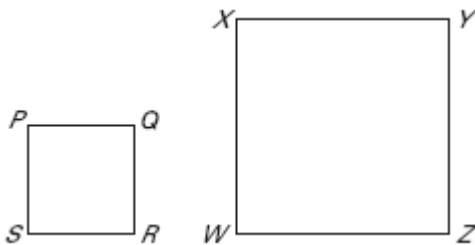
2. $\triangle RST \sim \triangle WVU$



3. $CDEF \sim MJKL$



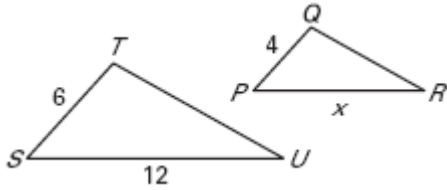
4. $PQRS \sim ZWXY$



The polygons are similar as indicated. Find the value of x .

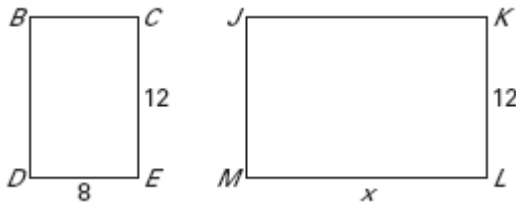
9. $\triangle STU \sim \triangle PQR$

8



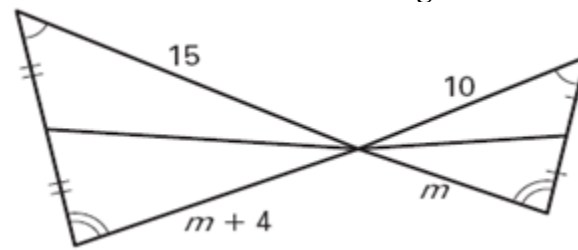
10. $BCDE \sim KLMJ$

18



11. Find the value of m . The triangles are similar.

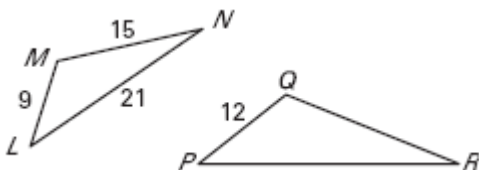
8



Use the similarity statement to find the scale factor of the polygon on the left to the polygon on the right. Then find the perimeter of each polygon.

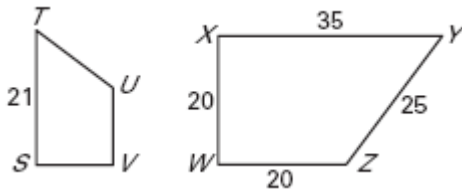
12. $\triangle LMN \sim \triangle PQR$

60



13. $STUV \sim XYZW$

60



201.6

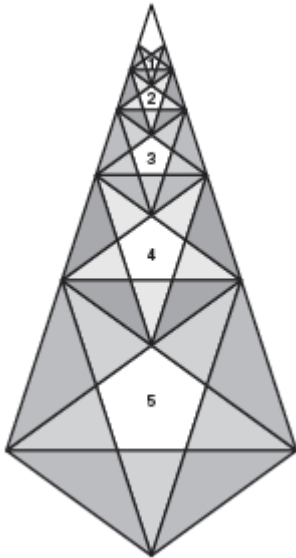
14. $\triangle CDX \sim \triangle GNZ$, the perimeter of $\triangle CDX$ is 48 feet, $CX = 14$ feet, and $GZ = 58.8$ feet.

Find the perimeter of $\triangle GNZ$.

Lesson 6.1 Use Similar Polygons

Teaching Guide

1.



2. 5 pentagons, 20 obtuse isosceles triangles, 25 acute triangles and 1 kite

Practice Level A

1. $\angle A \cong \angle D, \angle B \cong \angle E, \angle C \cong \angle F;$
 $\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$

2. $\angle R \cong \angle W, \angle S \cong \angle V, \angle T \cong \angle U;$
 $\frac{RS}{WV} = \frac{ST}{VU} = \frac{RT}{WU}$

3. $\angle C \cong \angle M, \angle D \cong \angle J, \angle E \cong \angle K,$
 $\angle F \cong \angle L; \frac{CD}{MJ} = \frac{DE}{JK} = \frac{EF}{KL} = \frac{CF}{ML}$

4. $\angle P \cong \angle Z, \angle Q \cong \angle W, \angle R \cong \angle X,$
 $\angle S \cong \angle Y; \frac{PQ}{ZW} = \frac{QR}{WX} = \frac{RS}{XY} = \frac{PS}{ZY}$

5. $\triangle ABC \sim \triangle FDE; \frac{1}{2}$ 6. $GHIJ \sim KLMN; \frac{3}{2}$

7. not similar 8. $\triangle ABC \sim \triangle FDE; \frac{1}{1}$ 9. 8

10. 18 11. $\frac{3}{4}; P(\triangle LMN) = 45, P(\triangle PQR) = 60$

12. $\frac{3}{5}; P(XYZW) = 100, P(STUV) = 60$

13. altitudes; $x = 24$ 14. medians; $y = 12$

15. The shadow is not similar to the kite because the corresponding side ratios are not all the same:

$\frac{95}{78} \approx 1.22 \neq 1.08 \approx \frac{142}{132}$

Practice Level B

1. $\angle A \cong \angle D, \angle B \cong \angle F, \angle C \cong \angle E,$

$\frac{AB}{DF} = \frac{BC}{FE} = \frac{AC}{DE}$ 2. $\angle W \cong \angle M, \angle X \cong \angle N,$

$\angle Y \cong \angle O, \angle Z \cong \angle P, \frac{WX}{MN} = \frac{XY}{NO} = \frac{YZ}{OP} = \frac{WZ}{MP}$

3. C 4. no 5. yes; $BCDA \sim WXYZ; \frac{1}{4}$ or

$WXYZ \sim BCDA; 4$

6. $\frac{4}{5}$ 7. 15, 8, 135 8. 40 9. 50 10. $\frac{5}{4}$

11. $m = 11, n = 4$ 12. $m = 8$ 13. 30 in., 21 in.

14. 9.75 in. 15. C 16. $\frac{2}{5}$

17. $XY = 3.6, PN = 15$ 18. 2.32

19. Area of $\triangle XYZ = 6.96$; Area of $\triangle MNP = 43.5$; The ratio of the areas of similar triangles equals the scale factor squared.

20. $\frac{3}{5}$ 21. 60 ft 22. 3200 ft²

Practice Level C

1. $\angle S \cong \angle C, \angle T \cong \angle D, \angle U \cong \angle E;$
 $\frac{ST}{CD} = \frac{TU}{DE} = \frac{SU}{CE}$

2. $\angle L \cong \angle G, \angle M \cong \angle H, \angle N \cong \angle I;$
 $\frac{LM}{GH} = \frac{MN}{HI} = \frac{LN}{GI}$

3. $\angle C \cong \angle M, \angle D \cong \angle N, \angle E \cong \angle K,$
 $\angle F \cong \angle L; \frac{CD}{MN} = \frac{DE}{NK} = \frac{EF}{KL} = \frac{CF}{ML}$

4. $\triangle LNM \sim \triangle TPO; \frac{4}{3}$

5. quadrilateral $ABCD \sim$ quadrilateral $HEFG; \frac{5}{8}$

6. $\frac{2}{3}$ 7. $\frac{3}{2}$ 8. 4.5 9. 117° 10. 24 11. 201.6 ft

12. 77.4 in. 13. $\frac{rv}{u}$ 14. $\frac{sv}{u}$ 15. $\frac{tv}{u}$ 16. 6

17. -5, 2.5 18. 8 19. -0.4, 15

20. 8 times greater

Study Guide

1. $\frac{9}{10}$ 2. 36 3. $\frac{5}{4}$ 4. 77.5 5. 20

Problem Solving Workshop:

Mixed Problem Solving

1. a. 58,800 yen b. about 580.56 Canadian

dollars 2. a. $\frac{2}{7}, x = 45.5, y = 17.5$ b. 50, 175