

PRACTICE AND PROBLEM SOLVING

Independent Practice

For Exercises	See Example
11–12	1
13–14	2
15–16	3
17–18	4
19	5

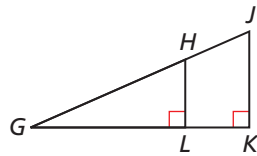
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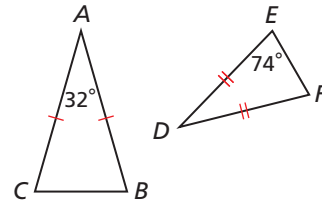
Online Extra Practice

Explain why the triangles are similar and write a similarity statement.

11.

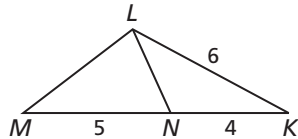


12.

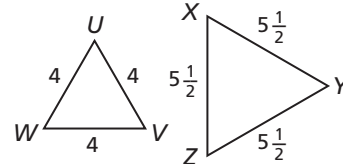


Verify that the given triangles are similar.

13. $\triangle KLM$ and $\triangle KNL$

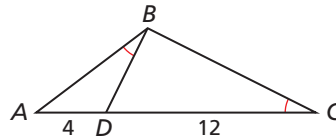


14. $\triangle UVW$ and $\triangle XYZ$

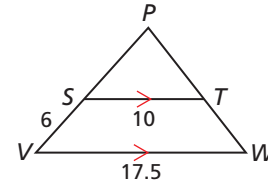


Multi-Step Explain why the triangles are similar and then find each length.

15. AB



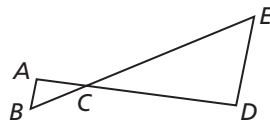
16. PS



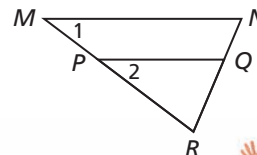
17. Given: $CD = 3AC$, $CE = 3BC$

Prove: $\triangle ABC \sim \triangle DEC$

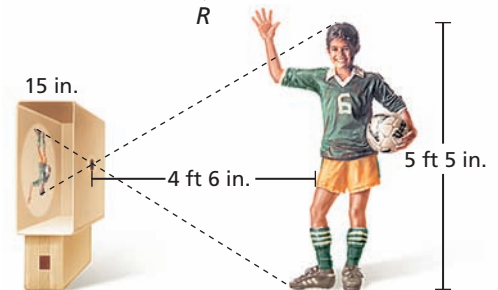
Prove: $\angle 1 \cong \angle 2$



18. Given: $\frac{PR}{MR} = \frac{QR}{NR}$



19. **Photography** The picture shows a person taking a pinhole photograph of himself. Light entering the opening reflects his image on the wall, forming similar triangles. What is the height of the image to the nearest tenth of a foot?



Draw $\triangle JKL$ and $\triangle MNP$. Determine if you can conclude that $\triangle JKL \sim \triangle MNP$ based on the given information. If so, which postulate or theorem justifies your response?

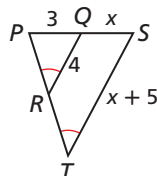
20. $\angle K \cong \angle N$, $\frac{JK}{MN} = \frac{KL}{NP}$

21. $\frac{JK}{MN} = \frac{KL}{NP} = \frac{JL}{MP}$

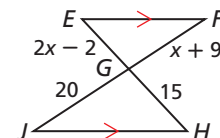
22. $\angle J \cong \angle M$, $\frac{JL}{MP} = \frac{KL}{NP}$

Find the value of x .

23.



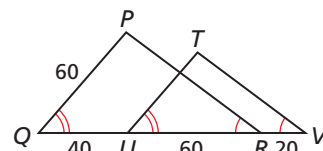
24.



TEST PREP

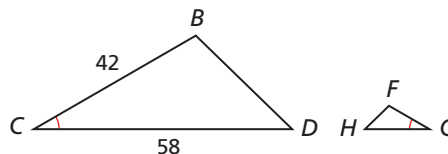
34. What is the length of \overline{TU} ?

- (A) 36 (C) 48
(B) 40 (D) 90



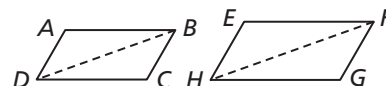
35. Which dimensions guarantee that $\triangle BCD \sim \triangle FGH$?

- (F) $FG = 11.6, GH = 8.4$
(G) $FG = 12, GH = 14$
(H) $FG = 11.4, GH = 11.4$
(J) $FG = 10.5, GH = 14.5$



36. $\square ABCD \sim \square EFGH$. Which similarity postulate or theorem lets you conclude that $\triangle BCD \sim \triangle FGH$?

- (A) AA (C) SAS
(B) SSS (D) None of these



37. **Gridded Response** If 6, 8, and 12 and 15, 20, and x are the lengths of the corresponding sides of two similar triangles, what is the value of x ?

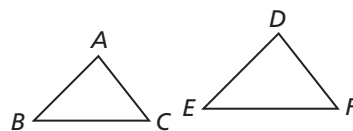
CHALLENGE AND EXTEND

H.O.T. 38. Prove the SSS Similarity Theorem.

Given: $\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$

Prove: $\triangle ABC \sim \triangle DEF$

(Hint: Assume that $AB < DE$ and choose point X on \overline{DE} so that $\overline{AB} \cong \overline{DX}$. Then choose point Y on \overline{DF} so that $\overline{XY} \parallel \overline{EF}$. Show that $\triangle DXY \sim \triangle DEF$ and that $\triangle ABC \cong \triangle DXY$.)

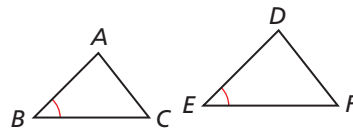


H.O.T. 39. Prove the SAS Similarity Theorem.

Given: $\angle B \cong \angle E, \frac{AB}{DE} = \frac{BC}{EF}$

Prove: $\triangle ABC \sim \triangle DEF$

(Hint: Assume that $AB < DE$ and choose point X on \overline{DE} so that $\overline{EX} \cong \overline{BA}$. Then choose point Y on \overline{EF} so that $\angle EXY \cong \angle EDF$. Show that $\triangle XEY \sim \triangle DEF$ and that $\triangle ABC \cong \triangle XEY$.)



H.O.T. 40. Given $\triangle ABC \sim \triangle XYZ$, $m\angle A = 50^\circ$, $m\angle X = (2x + 5y)^\circ$, $m\angle Z = (5x + y)^\circ$, and that $m\angle B = (102 - x)^\circ$, find $m\angle Z$.

MATHEMATICAL PRACTICES

FOCUS ON MATHEMATICAL PRACTICES

H.O.T. 41. **Reasoning** Explain why angle-side-angle (ASA) is not given as a relationship that proves two triangles are similar.

H.O.T. 42. **Justify** $\triangle ABC$ and $\triangle JKL$ are isosceles triangles with congruent legs. $\angle B$ and $\angle K$ are both 40° angles. Must the two triangles be similar? Explain.

H.O.T. 43. **Problem Solving** $\triangle EFG \sim \triangle PQR$. The following side lengths are given: $PQ = 3$, $QR = 5$, and $EG = 24$. The perimeter of $\triangle EFG$ is 56. Find the unknown side lengths of each triangle.