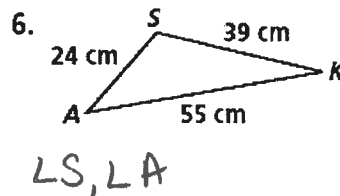
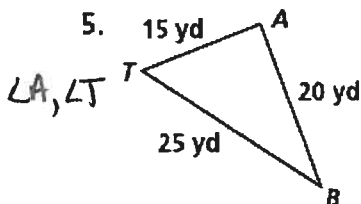
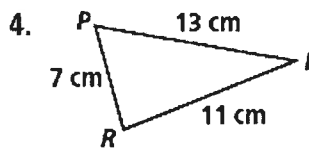
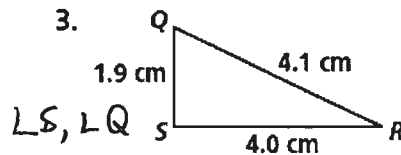
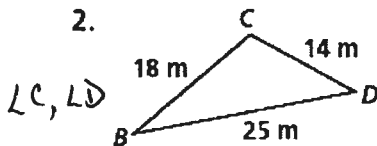
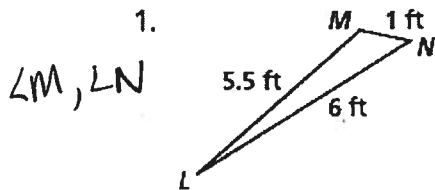


Practice 5-5

Inequalities in Triangles

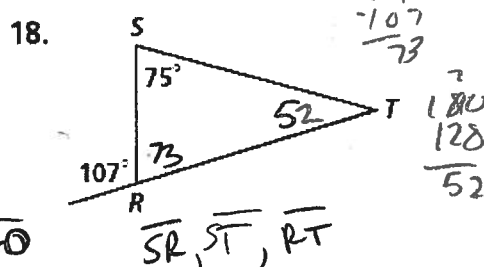
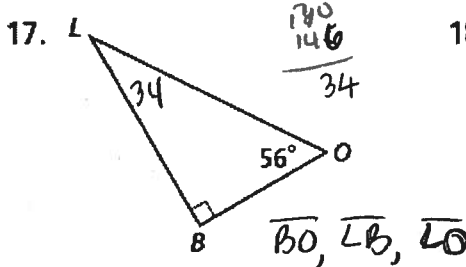
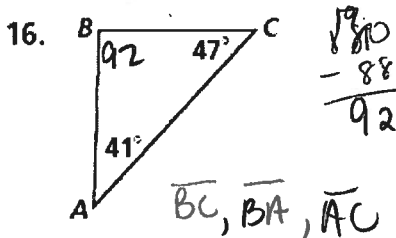
Determine the two largest angles in each triangle.



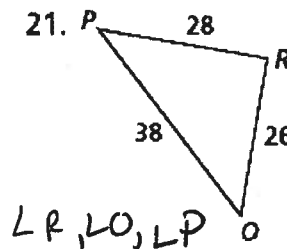
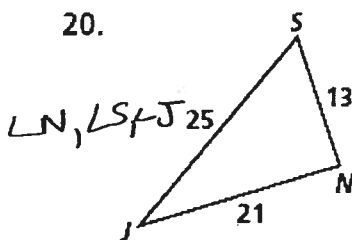
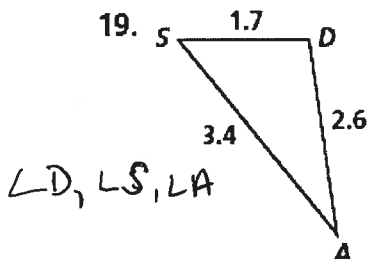
Can a triangle have sides with the given lengths? Explain.

7. 4 m, 7 m, and 8 m *yes* $11 > 8$
 $15 > 4$
 $12 > 7$
8. 6 m, 10 m, and 17 m *NO* $16 > 17$
9. 4 in., 4 in., and 4 in. *yes*
10. 1 yd, 9 yd, and 9 yd *yes* $10 > 9$
 $10 > 9$
 $18 > 1$
11. 11 m, 12 m, and 13 m *yes* $23 > 13$
 $25 > 11$
 $26 > 12$
12. 18 ft, 20 ft, and 40 ft *NO*
13. 1.2 cm, 2.6 cm, and 4.9 cm *NO* $3.8 > 4.9$
14. $8\frac{1}{4}$ yd, $9\frac{1}{4}$ yd, and 18 yd *NO* $17 > 18$
15. 2.5 m, 3.5 m, and 6 m *NO* $5.5 > 6$

List the sides of each triangle in order from shortest to longest.



List the angles of each triangle in order from largest to smallest.



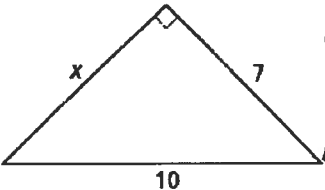
The lengths of two sides of a triangle are given. Describe the lengths possible for the third side.

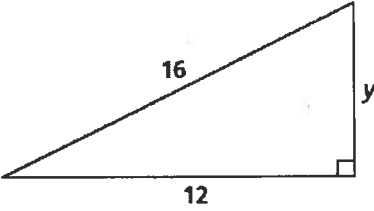
22. 4 in., 7 in. $x < 11$
 $x > 3$
23. 9 cm, 17 cm $x < 26$
 $x > 8$
24. 5 ft, 5 ft $x < 10$
 $x > 0$
25. 11 m, 20 m $x < 31$
 $x > 9$
26. 6 km, 8 km $x < 14$
 $x > 2$
27. 24 in., 37 in. $x < 61$
 $x < 13$

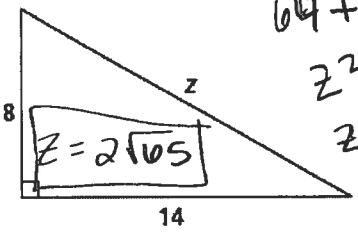
Practice 8-1

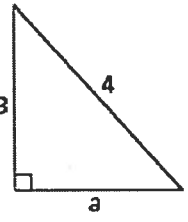
The Pythagorean Theorem and Its Converse

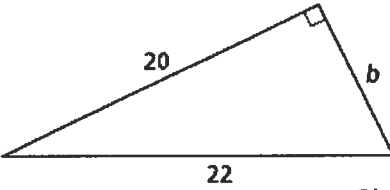
Find the value of each variable. Leave your answers in simplest radical form.

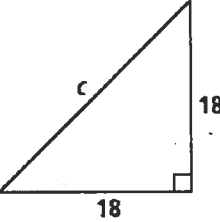
1.  $100 = 49 + x^2$
 $x = \sqrt{51}$

2.  $16^2 = y^2 + 12^2$
 $y^2 = \sqrt{112}$
 $y = 4\sqrt{7}$

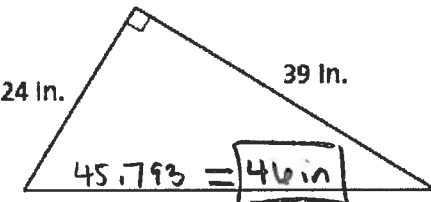
3.  $64 + 196 = z^2$
 $z^2 = 260$
 $z = \sqrt{260} = 2\sqrt{65}$

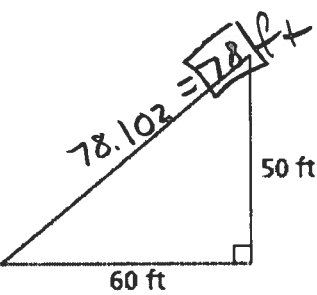
4.  $a = \sqrt{7}$

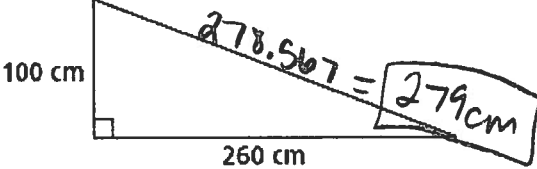
5.  $22^2 = 20^2 + b^2$
 $\sqrt{b^2} = \sqrt{84} = 2\sqrt{21}$
 $b = 2\sqrt{21}$

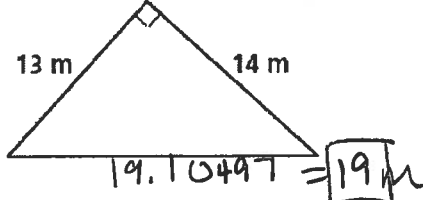
6.  $324 + 324 = c^2$
 $c^2 = 648$
 $c = 18\sqrt{2}$

Find the length of each hypotenuse. Use your calculator, and round your answers to the nearest whole number.

7.  $45.793 = 46 \text{ in}$

8.  $78.102 = 78 \text{ ft}$
 $c = 18\sqrt{2}$

9.  $278.567 = 279 \text{ cm}$

10.  $19.1047 = 19 \text{ m}$

The numbers represent the lengths of the sides of a triangle. Classify each triangle as acute, obtuse, or right.

11. 6, 9, 10 $36 + 81 > 100$ **A** 12. 18, 24, 30 $18^2 + 24^2 = 30^2$ **R** 13. 20, 100, 110 $20^2 + 100^2 < 110^2$ **A**
 14. 7, 24, 25 $7^2 + 24^2 = 25^2$ **R** 15. 2, 5, 6 $2^2 + 5^2 < 6^2$ **A** 16. 13, 21, 24 $13^2 + 21^2 < 24^2$ **A**
 $4 + 25 < 36$ $169 + 441 < 576$
 $610 > 576$