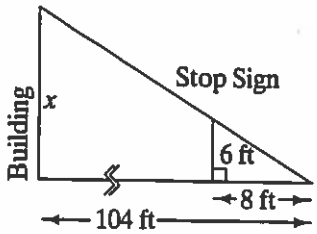
Name _____ Class _____ Date _____

Practice 4-7

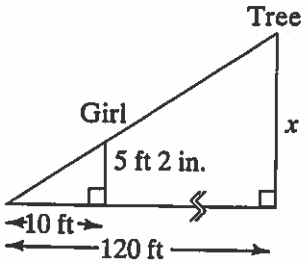
Similarity and Indirect Measurement

In each figure, find x.

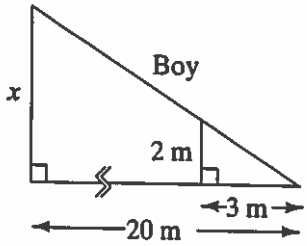
1.



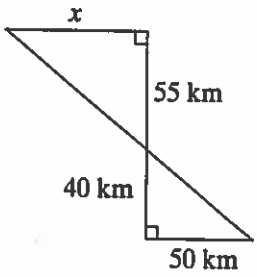
2.



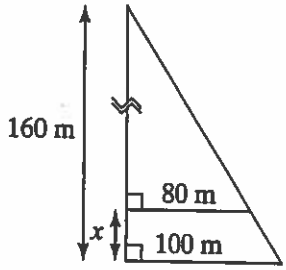
3.



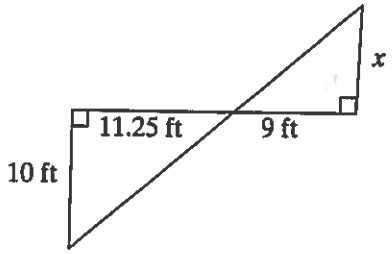
4.



5.



6.



Solve.

7. An office building 55 ft tall casts a shadow 30 ft long. How tall is a person standing nearby who casts a shadow 3 ft long?

8. A 20-ft pole casts a shadow 12 ft long. How tall is a nearby building that casts a shadow 20 ft long?

9. A fire tower casts a shadow 30 ft long. A nearby tree casts a shadow 8 ft long. How tall is the fire tower if the tree is 20 ft tall?

10. A house casts a shadow 12 m long. A tree in the yard casts a shadow 8 m long. How tall is the tree if the house is 20 m tall?

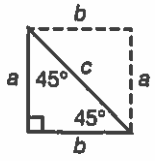
Name _____ Class _____ Date _____

Enrichment 4-7

Similarity and Indirect Measurement

Patterns in Geometry

When you draw a diagonal within a square, the result is two isosceles right triangles. Another name for an isosceles right triangle is a *45-45-90 triangle.*



1. Use the Pythagorean Theorem to find the missing side of each triangle. Round your answer to the nearest tenth if necessary.

Leg *a*	Leg *b*	Hypotenuse
1		
		2.8
3	3	
		5.7
	5	
6		

2. What pattern do you notice in the *columns* of the table above?

_____

_____

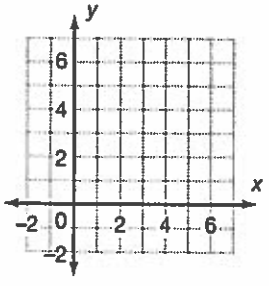
3. What pattern do you notice in the *rows* of the table above?

_____

_____

4. The lengths of the sides of any 45-45-90 triangles are x, x, and $x\sqrt{2}$. See how that compares to your answers to Exercises 2 and 3. Then draw a triangle and label the sides using x, x, and $x\sqrt{2}$.

5. Graph these ordered pairs: (1, 6), (1, 1), and (6, 1). What kind of triangle did you graph?



_____

6. What is the length of each leg?

_____

7. What is the length of the hypotenuse?

_____