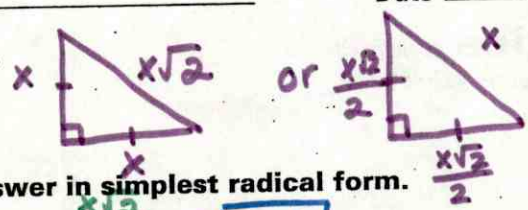
Name _____ Date _____ A1

LESSON 7.4

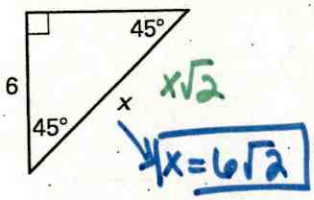
Practice

For use with pages 457–464



Find the value of x. Write your answer in simplest radical form.

1.



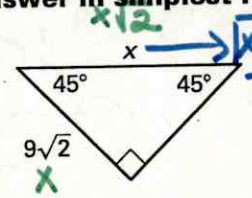
x = 6

x√2 = 6√2

x√2

x = 6√2

2.



x√2

x → x = 18

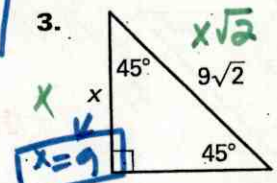
x = 9√2

x√2 = 9√2(√2)

9(√4)

9(2) = 18

3.



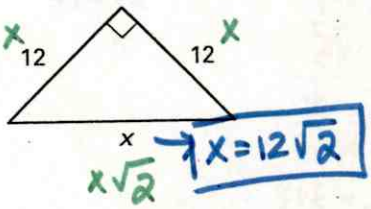
x√2

x = 9

x = 9

x√2 = 9√2

4.



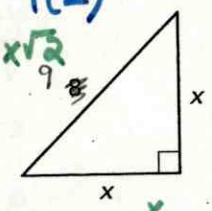
x√2

x = 12√2

x = 12

x√2 = 12√2

5.



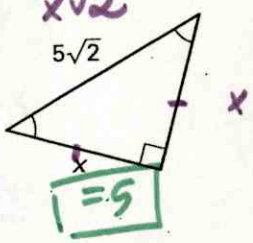
x√2

x

x = 9√2/2

x√2/√2 = 9/√2 → x = 9/√2 · √2/√2 = 9√2/2

6.



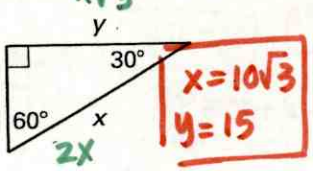
x√2

x = 5

x√2 = 5√2

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

7.



x√3

x = 10√3

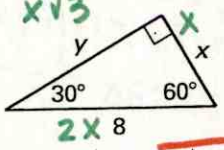
y = 15

x = 5√3

x√3 = 5√3(√3) = 5√9 = 5(3) = 15

2x = 2(5√3) = 10√3

8.



x√3

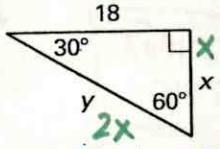
x = 4

y = 4√3

x√3 = 4√3

2x = 8

9.



x√3

x = 6√3

y = 12√3

x√3 = 18

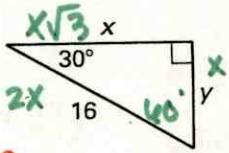
x√3/√3 = 18/√3 · √3/√3

x = 18√3/3

x = 6√3

2x = 2(6√3) = 12√3

10.



x√3

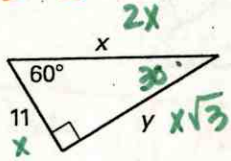
x = 8

y = 8

x√3 = 8√3

2x = 16

11.



x = 11

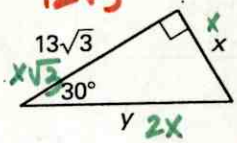
x = 22

y = 11√3

x√3 = 11√3

2x = 22

12.



x = 13

x = 13

y = 26

x√3 = 13√3

2x = 26

Name _____ Date _____

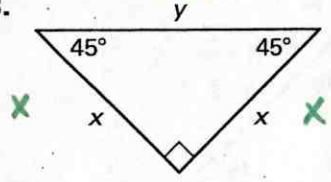
LESSON 7.4

Practice *continued*

For use with pages 457–464

Complete the table.

13.



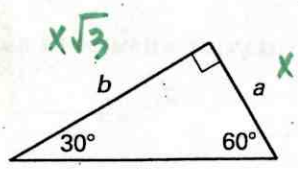
x	5	4	$\sqrt{2}$	9	$12\sqrt{2}$
y	$5\sqrt{2}$	$4\sqrt{2}$	2	$9\sqrt{2}$	24

$(\sqrt{2})(\sqrt{2})$ $\frac{x\sqrt{2}}{\sqrt{2}} = \frac{24}{\sqrt{2}}$

$x = \frac{24}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

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

14.



a	9	$3\sqrt{3}$	5	11	8
b	$9\sqrt{3}$	9	$5\sqrt{3}$	$11\sqrt{3}$	$8\sqrt{3}$
c	18	$6\sqrt{3}$	10	$22\sqrt{3}$	16

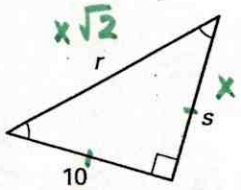
$\frac{x\sqrt{3}}{\sqrt{3}} = \frac{9}{\sqrt{3}}$ $2x = 16$

$x = \frac{9}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

$\frac{9\sqrt{3}}{3} = 3\sqrt{3}$

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

15.



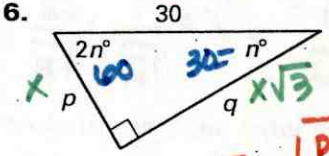
$x = 10$

$x = 10$

$x\sqrt{2} = 10\sqrt{2}$

$r = 10\sqrt{2}$, $s = 10$

16.



$2n + n = 90$

$3n = 90$

$n = 30$

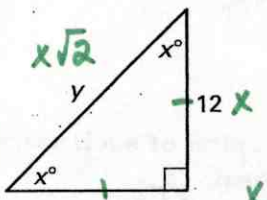
$x = 15$

$x\sqrt{3} = 15\sqrt{3}$

$2x = 30$

$p = 15$, $q = 15\sqrt{3}$

17.



$x + x = 90$

$2x = 90$

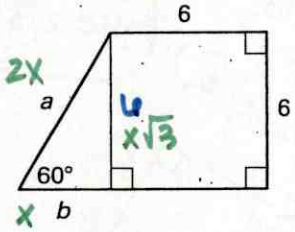
$x = 45°$

$x = 12$

$x\sqrt{2} = 12\sqrt{2}$

$y = 12\sqrt{2}$

18.



$x = 2\sqrt{3}$

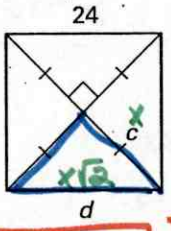
$x\sqrt{3} = 6$

$2x = 4\sqrt{3}$

$\frac{x\sqrt{3}}{\sqrt{3}} = \frac{6}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{6\sqrt{3}}{3}$

$a = 4\sqrt{3}$, $b = 2\sqrt{3}$

19.



$d = 24$

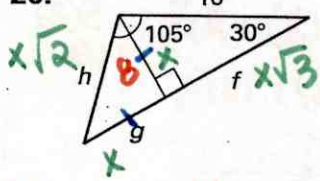
$c = 12\sqrt{2}$

$x = 12\sqrt{2}$

$\frac{x\sqrt{2}}{\sqrt{2}} = \frac{24}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

$x = \frac{24\sqrt{2}}{2} = 12\sqrt{2}$

20.



$x = 8$

$x\sqrt{3} = 8\sqrt{3}$

$2x = 16$

$x = 8$

$x\sqrt{2} = 8\sqrt{2}$

$g = 8$, $f = 8\sqrt{3}$, $h = 8\sqrt{2}$

Name _____ Date _____

LESSON 7.4

Practice *continued*

For use with pages 457–464

The side lengths of a triangle are given. Determine whether it is a *45°-45°-90° triangle*, a *30°-60°-90° triangle*, or *neither*.

21. $5, 10, 5\sqrt{3}$

$x : 2x : x\sqrt{3}$ ✓

30-60-90

22. $7, 7, 7\sqrt{3}$

$x : x : x\sqrt{2}$

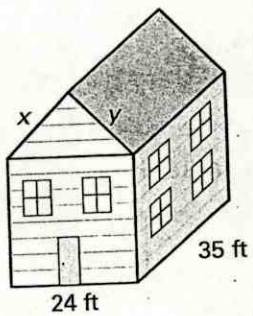
Neither

23. $6, 6, 6\sqrt{2}$

$x : x : x\sqrt{2}$ ✓

45-45-90

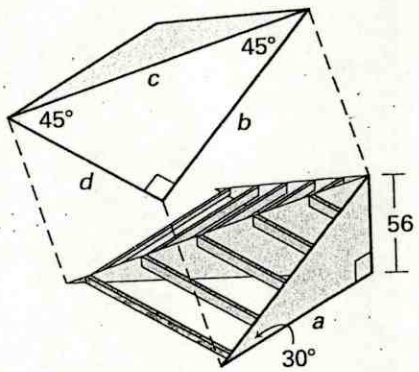
24. Roofing You are replacing the roof on the house shown, and you want to know the total area of the roof. The roof has a 1-1 pitch on both sides, which means that it slopes upward at a rate of 1 vertical unit for each 1 horizontal unit.



a. Find the values of x and y in the diagram.

b. Find the total area of the roof to the nearest square foot.

25. Skateboard Ramp You are using wood to build a pyramid-shaped skateboard ramp. You want each ramp surface to incline at an angle of 30° and the maximum height to be 56 centimeters as shown.



a. Use the relationships shown in the diagram to determine the lengths a, b, c, and d to the nearest centimeter.

b. Suppose you want to build a second pyramid ramp with a 45° angle of incline and a maximum height of 56 inches. You can use the diagram shown by simply changing the 30° angle to 45°. Determine the lengths a, b, c, and d to the nearest centimeter for this ramp.