NAME Key DATE _____ SCORE _____

Practice 32
Right Triangles

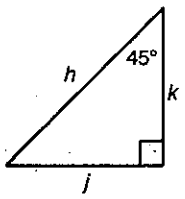
Lessons 8-1 through 8-4

Tell whether a triangle with sides of the given lengths is acute, right, or obtuse. If a triangle can't be formed, write *not possible.*

1. 4, 5, 6 acute
2. 5, 12, 13 right
3. 2, 7, 9 not possible
4. 1, $\sqrt{7}$, $2\sqrt{2}$ right
5. 6, 8, 12 obtuse
6. $\sqrt{5}$, $2\sqrt{5}$, 5 right

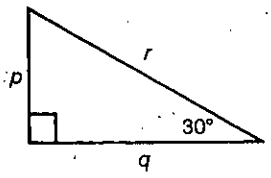
Complete the tables.

	7.	8.	9.	10.	11.
j	3	$\frac{1}{2}$	$\sqrt{2}$	$4\sqrt{2}$	$\sqrt{3}$
k	3	$\frac{1}{2}$	$\sqrt{2}$	$4\sqrt{2}$	$\sqrt{3}$
h	$3\sqrt{2}$	$\frac{\sqrt{2}}{2}$	2	8	$\sqrt{6}$



Exs. 7–11

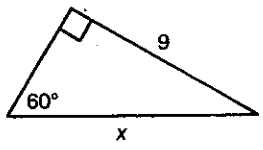
	12.	13.	14.	15.	16.
p	5	3	10	$2\sqrt{3}$	$3\sqrt{6}$
q	$5\sqrt{3}$	$3\sqrt{3}$	$10\sqrt{3}$	6	$9\sqrt{2}$
r	10	6	20	$4\sqrt{3}$	$6\sqrt{6}$



Exs. 12–16

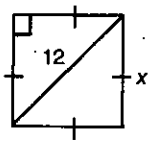
Find the missing lengths in each figure. The diagram in Exercise 21 shows a three-dimensional figure.

17.



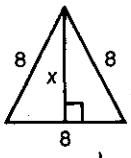
$x =$ $6\sqrt{3}$

18.



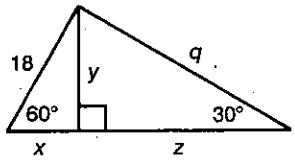
$x =$ $6\sqrt{2}$

19.



$x =$ $4\sqrt{3}$

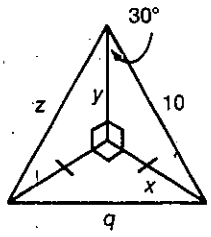
20.



$x =$ 9 $y =$ $9\sqrt{3}$

$z =$ 27 $q =$ $18\sqrt{3}$

21.



$x =$ 5 $y =$ $5\sqrt{3}$

$z =$ 10 $q =$ $5\sqrt{2}$

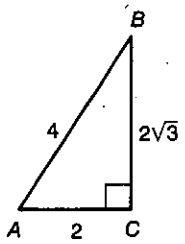
NAME _____ DATE _____ SCORE _____

Practice 33
Trigonometry

Lessons 8-5 through 8-7

Express the following as fractions in simplest form.

1. $\sin A =$ $\frac{\sqrt{3}}{2}$
2. $\cos A =$ $\frac{1}{2}$
3. $\tan A =$ $\sqrt{3}$
4. $\sin B =$ $\frac{1}{2}$
5. $\cos B =$ $\frac{\sqrt{3}}{2}$
6. $\tan B =$ $\frac{\sqrt{3}}{3}$



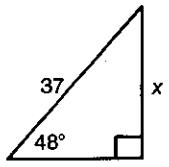
Exs. 1–6

Use a scientific calculator or the table on page 311 of the text to complete the following statements.

7. $\sin 70° \approx$ 0.9397
8. $\cos 32° \approx$ 0.8480
9. $\tan 14° \approx$ 0.2493
10. $\sin$ 77° ≈ 0.9744
11. $\cos$ 8° ≈ 0.9903
12. $\tan$ 61° ≈ 1.8040

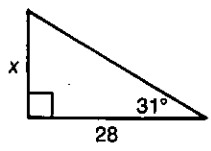
Use a scientific calculator or the table on page 311 of the text to find the value of x. Find lengths correct to the nearest integer and angles correct to the nearest degree.

13.



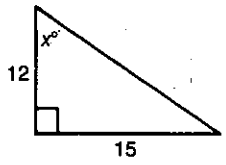
$x =$ 27

14.



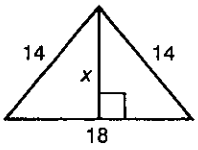
$x =$ 17

15.



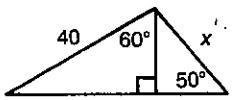
$x =$ 51

16.



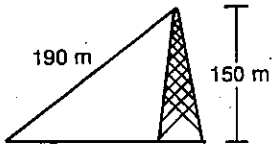
$x =$ 11

17.

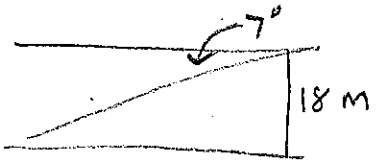


$x =$ 26

18. A support wire is attached to the top of a 150 m radio tower. The wire is 190 m long. What is the angle, to the nearest degree, that the wire makes with the ground? 52°



19. A woman standing on a cliff at the edge of the ocean spots a raft. Her eye level is 18 m above sea level and the angle of depression is 7°.
   a. Make a sketch.
   b. To the nearest 10 m, find the distance from the raft to the base of the cliff. 150 m

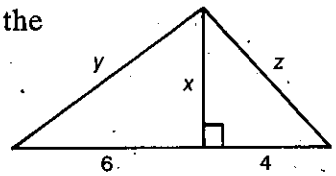


NAME _____ DATE _____ SCORE _____

Practice 34
Chapter 8 Practice

In Exercises 1–3, classify each statement as true or false.

1. The geometric mean between 6 and 10 is $2\sqrt{15}$. true
2. When simplified, $\frac{1}{\sqrt{8}}$ equals $\frac{\sqrt{2}}{4}$. true
3. A triangle with sides having lengths 5, 10, and 12 must be acute. false
4. The diagram shows a right triangle with the altitude drawn to the hypotenuse. Find the values of x, y, and z.

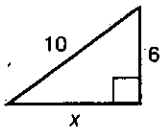


$x =$ $2\sqrt{6}$

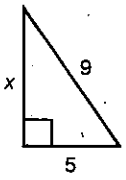
$y =$ $2\sqrt{15}$

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

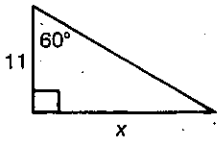
Find the value of x.

5. 

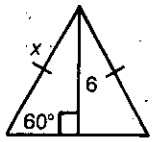
$x =$ 8

6. 

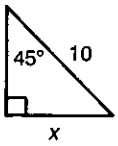
$x =$ $2\sqrt{14}$

7. 

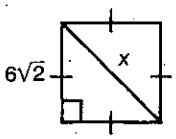
$x =$ $11\sqrt{3}$

8. 

$x =$ $4\sqrt{3}$

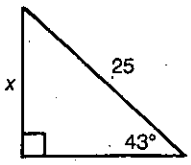
9. 

$x =$ $5\sqrt{2}$

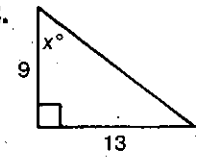
10. 

$x =$ 12

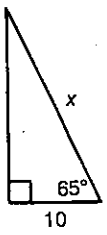
Use a calculator or the table on page 311 of the text to find the value of x. Find lengths correct to the nearest integer and angles correct to the nearest degree.

11. 

$x =$ 17

12. 

$x =$ 55

13. 

$x =$ 24

NAME _____ DATE _____ SCORE _____

Right Triangles

For use after Chapter 8

Complete.

1. The geometric mean between 6 and 15 is $3\sqrt{10}$.
2. In simplest form, $\frac{2}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$.

Find the length of each segment.

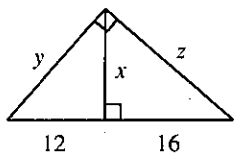
3. The hypotenuse of a right triangle with legs of lengths 5 and 12 13
4. A diagonal of a rectangle with width 7 cm and length 24 cm 25 cm
5. A diagonal of a square with sides of length 12 $12\sqrt{2}$
6. The altitude to the base of an isosceles triangle with sides of lengths 12, 12, and 20 $2\sqrt{11}$

Tell whether the triangle with sides of the given lengths is acute, right, or obtuse.

7. 7, 7, 10 obtuse
8. 6, 7, 8 acute
9. 1, 2.4, 2.6 right

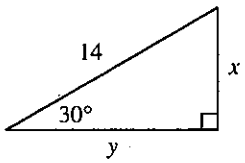
Find the value of each variable.

10.



$x = 8\sqrt{3}$
$y = 4\sqrt{21}$
$z = 8\sqrt{7}$

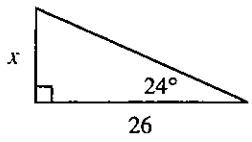
11.



$x = 7$
$y = 7\sqrt{3}$

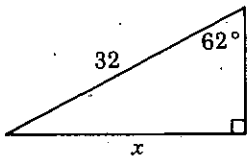
Find the value of x correct to the nearest integer. Use a scientific calculator or the table on page 311 of the text.

12.



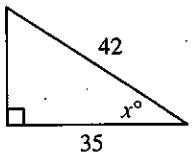
$x \approx 12$

13.



$x \approx 28$

14.



$x \approx 34$

15. At a certain time, a vertical pole 4 m tall casts a shadow 6 m long. Find, to the nearest degree, the angle of elevation of the sun. Use a calculator or the table on page 311 of the text.

34°