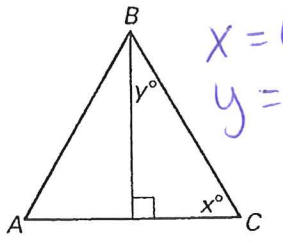
9.4 Practice A

NAME Key DATE _____

For use with pages 551–557

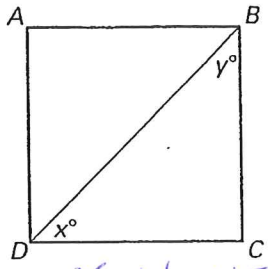
Find the value of each variable in the polygon.

1. Equilateral $\triangle ABC$



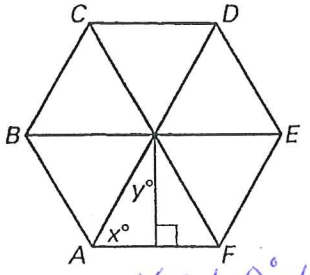
$x = 60°$
$y = 30°$

2. Square $ABCD$



$x = y = 45°$

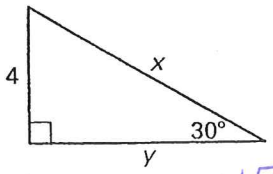
3. Regular hexagon $ABCDEF$



$x = 60°$ $y = 30°$

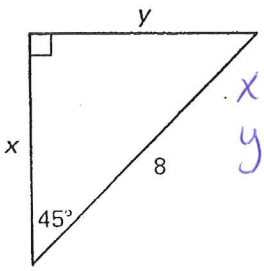
Find the value of each variable. Write answers in simplest radical form.

4.



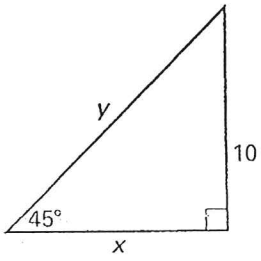
$x = 8$, $y = 4\sqrt{3}$

5.



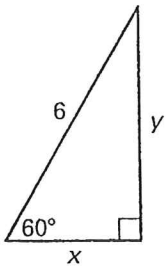
$x = 4\sqrt{2}$
$y = 4\sqrt{2}$

6.



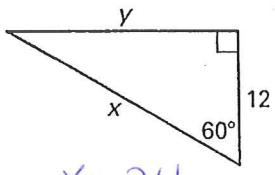
$x = 10$
$y = 10\sqrt{2}$

7.



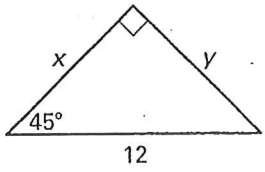
$x = 3$
$y = 3\sqrt{3}$

8.



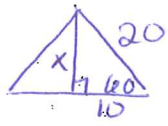
$x = 24$
$y = 12\sqrt{3}$

9.

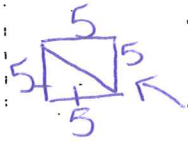


$x = 6\sqrt{2}$
$y = 6\sqrt{2}$

Sketch the figure that is described. Find the requested length. Round decimals to the nearest tenth. ALL Great Quiz/TEST ??'s



10. The side length of an equilateral triangle is 20 centimeters. Find the length of an altitude of the triangle. $10\sqrt{3}$

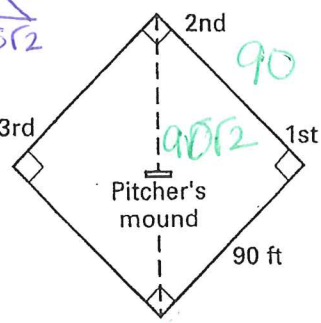


11. The perimeter of a square is 20 centimeters. Find the length of a diagonal. $5\sqrt{2}$

12. The diagonal of a square is 10 inches. Find the length of a side. $5\sqrt{2}$

Baseball **In Exercises 13–15, use the diagram and the following information.**

The infield of a baseball field is a square. The distance from home plate to first base is 90 feet.



13. What is the distance from home plate to second base? $90\sqrt{2}$

14. What is the distance from third base to first base? $90\sqrt{2}$

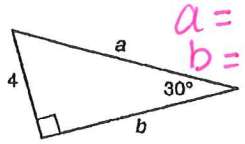
15. If the pitcher's mound is 60 feet 6 inches from home plate, is it the midpoint of the diagonal from home plate to second base?

60 ft 6 in ≠ 63 ft + 7.6 in
NO, not midpt

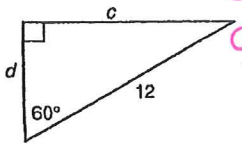
Extra Practice 9.4

Name Key

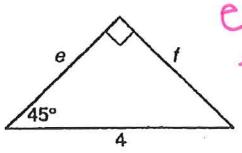
In 1–9, find the value of each variable in radical form.

1. 

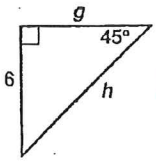
$a = 8$, $b = 4\sqrt{3}$

2. 

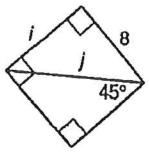
$c = 6\sqrt{3}$, $d = 6$

3. 

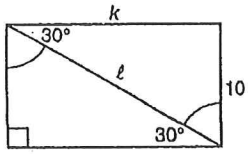
$e = 2\sqrt{2}$, $f = 2\sqrt{2}$

4. 

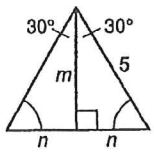
$g = 6$, $n = 6\sqrt{2}$

5. 

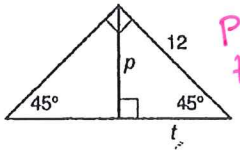
$i = 8$, $j = 8\sqrt{2}$

6. 

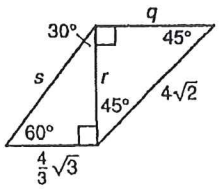
$K = 10\sqrt{3}$, $\ell = 20$

7. 

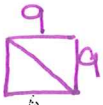
$n = 2.5$, $m = 2.5\sqrt{3}$

8. 

$P = 6\sqrt{2}$, $t = 6\sqrt{2}$

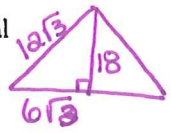
9. 

$q = 4$, $r = 4$, $S = \frac{8\sqrt{3}}{3}$



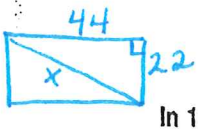
10. The perimeter of a square is 36. What is the length of the diagonal?
$= 9\sqrt{2}$

11. What is the length of a side of an equilateral triangle whose altitude has a length of 18?
$= 12\sqrt{3}$



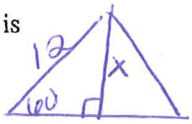
12. What is the length of a side of an isosceles right triangle if its hypotenuse is 16?
$8\sqrt{2}$

13. The length of the diagonal of a square is $\frac{5\sqrt{2}}{2}$. What is the length of a side?
$= 5/2$



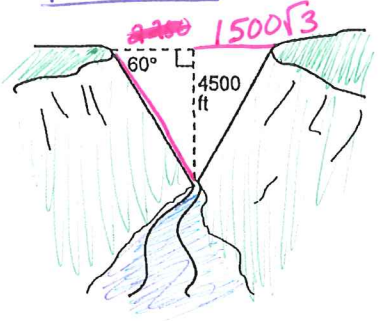
14. The perimeter of a rectangle is 66. The length is twice the width. What is the length of the diagonal?
$x = \sqrt{2420}$
$x = 2\sqrt{605}$

15. The perimeter of an equilateral triangle is 36. What is the length of an altitude?
$6\sqrt{3}$



In 16–18, use the diagram and the following information.

A point on the edge of a symmetrical canyon is 4500 ft above a river that cuts through the canyon floor. The angle of depression from each side of the canyon to the canyon floor is 60°.



16. Find the distance across the canyon.
$2(1500\sqrt{3}) = 3000\sqrt{3}$ ft

17. Find the length of the canyon wall (from the edge to the river).
$3000\sqrt{3}$ ft

18. Is it more or less than a mile across the canyon?
mile is ... 5280 ft ☺
$3000\sqrt{3} \approx 5196.15$ ft
∴ it is less than a mile.