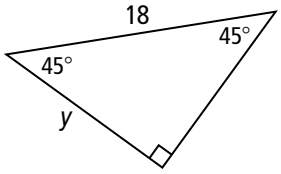
Name _____ Class _____ Date _____

Practice

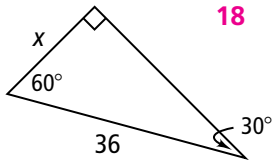
Form G

Special Right Triangles

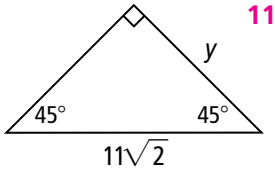
Find the value of each variable. If your answer is not an integer, express it in simplest radical form.

1. 

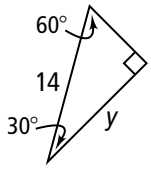
$9\sqrt{2}$

2. 

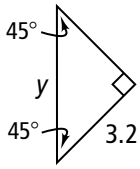
18

3. 

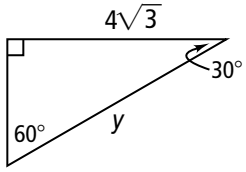
11

4. 

$7\sqrt{3}$

5. 

$3.2\sqrt{2}$

6. 

8

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

7. 40, 50, 80 neither

8. $31, 31\sqrt{2}, 62$ neither

9. $6\sqrt{2}, 6\sqrt{2}, 12$ 45°-45°-90°

10. $11, 11\sqrt{3}, 22$ 30°-60°-90°

11. A square has side length 95. What is the length of the diagonal of the square? Express your answer in simplest radical form. $95\sqrt{2}$

12. A square has diagonal length 13 m. What is the side length of the square, to the nearest centimeter? 919 cm

13. A professional baseball diamond is a square. The distance from base to base is 90 ft. To the nearest foot, how far does a catcher standing at home plate throw the ball across the diagonal of the square to second base? 127 ft

14. Children climb 8 ft to get to the top of a slide. The end of the slide is 1 ft above the ground and the slide rises at a 45° angle. If the slide makes a straight line from the top to the bottom, how far does a child travel down the slide? Round to the nearest foot. 10 ft

Name _____ Class _____ Date _____

Practice (continued) *Form G*

Special Right Triangles

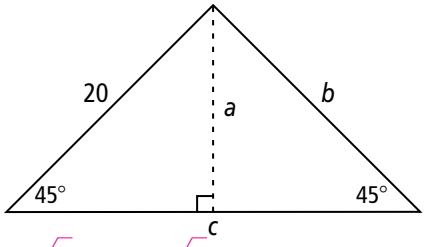
15. You set up a makeshift greenhouse by leaning a square pane of glass against a building. The glass is 4.5 ft long, and it makes a 30° angle with the ground. How much horizontal distance between the building and the glass is there to grow plants? Round to the nearest inch. **47 in.**

16. A square tablecloth has a line of embroidered flowers along the diagonal. The tablecloth is 48 in. on each side. How long is the embroidery line? Round to the nearest inch. **68 in.**

17. An equilateral triangle has height 26 cm. What is the length of each side of the triangle, to the nearest centimeter? **30 cm**

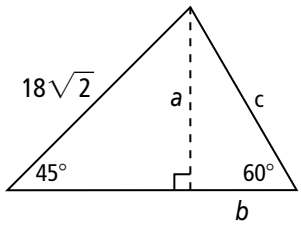
Find the value of each variable. If your answer is not an integer, express it in simplest radical form.

18.



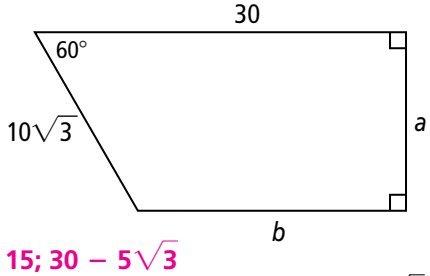
$10\sqrt{2}$; 20; $20\sqrt{2}$

19.



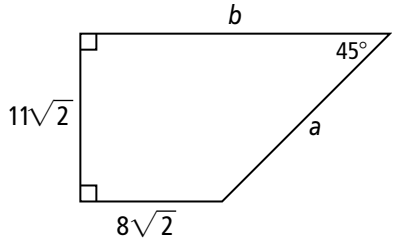
18; $6\sqrt{3}$; $12\sqrt{3}$

20.



15; $30 - 5\sqrt{3}$

21.



22; $19\sqrt{2}$

22. Right triangle ABC has area $32\sqrt{3}$ cm^2. The measure of $\angle A = 30$, $m\angle B = 90$. What is the length of BC? AB? AC? Express all answers in simplest radical form. **8 cm; $8\sqrt{3}$ cm; 16 cm**

23. An equilateral triangle has perimeter 120 in. What is the area of the triangle? Express your answer in simplest radical form. **$400\sqrt{3}$ in.^{2}**

24. Open-Ended Write a real-life problem that you can solve using a 45°-45°-90° triangle with an 18-ft hypotenuse. Show your solution. **Check students' work.**