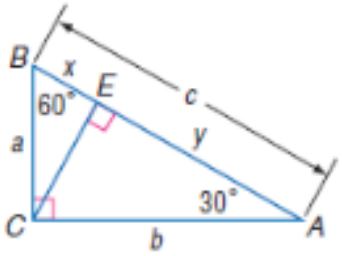
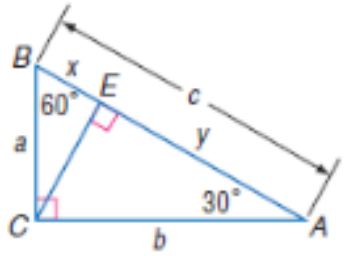
Special Right Triangles Day #2

1. Use triangle ABC. Find all missing variables.

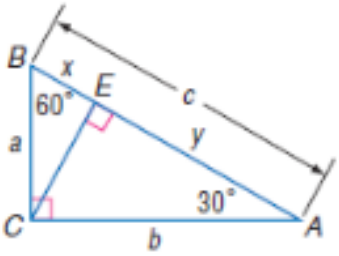
a.



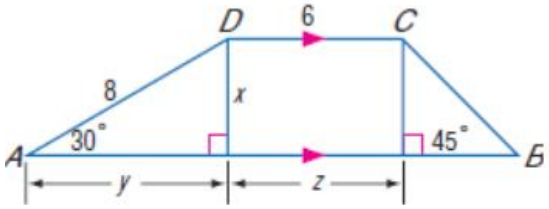
b.



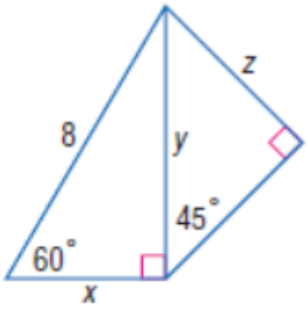
c.



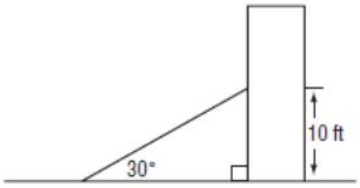
2. . Find x, y, z, and the perimeter of trapezoid $ABCD$.



3. Find x, y, and z.



4. A ladder is propped against a building at a 30° angle.

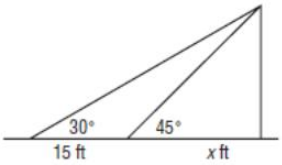


What is the length of the ladder?

A 5 ft
C $10\sqrt{3}$ ft
B 10 ft
D 20 ft

MOVIES For Exercises 5–7, use the following information.

Kim and Yolanda are watching a movie in a movie theater. Yolanda is sitting x feet from the screen and Kim is 15 feet behind Yolanda.



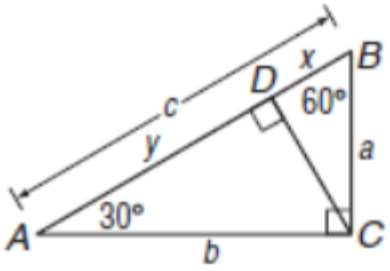
The angle that Kim's line of sight to the top of the screen makes with the horizontal is 30°. The angle that Yolanda's line of sight to the top of the screen makes with the horizontal is 45°.

5. How high is the top of the screen in terms of x?

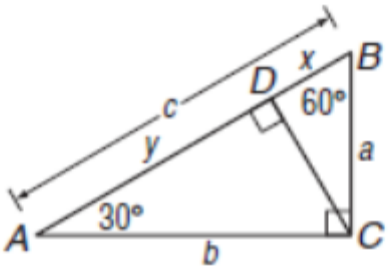
6. What is $\frac{x+15}{x}$?

7. How far is Yolanda from the screen? Round your answer to the nearest tenth.

8. If $x = 3\sqrt{3}$, find a and CD.



9. If $a = 4$, find CD, b, and y.



10. The perimeter of an equilateral triangle is 39 centimeters. Find the length of an altitude of the triangle.

11. $\triangle MIP$ is a 30°-60°-90° triangle with right angle at I, and $\overline{IP}$ the longer leg. Find the coordinates of M in Quadrant I for $I(3, 3)$ and $P(12, 3)$.

12. $\triangle TJK$ is a 45°-45°-90° triangle with right angle at J. Find the coordinates of T in Quadrant II for $J(-2, -3)$ and $K(3, -3)$.

13. **BOTANICAL GARDENS** One of the displays at a botanical garden is an herb garden planted in the shape of a square. The square measures 6 yards on each side. Visitors can view the herbs from a diagonal pathway through the garden. How long is the pathway?