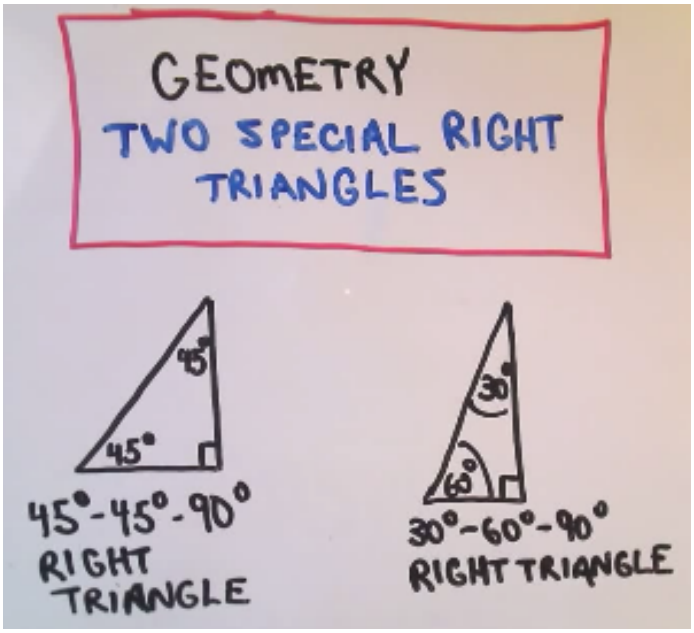
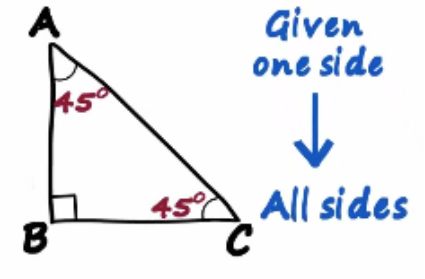
5.2 SPECIAL RIGHT TRIANGLES NAME: _____

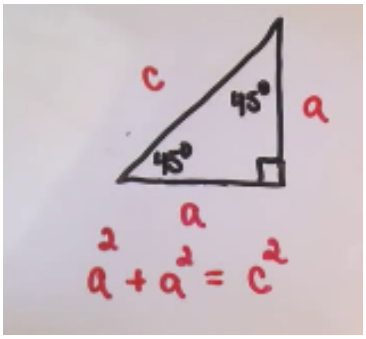




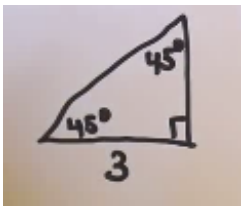
____ = ____ < ____

45 – 45 – 90 PROOF

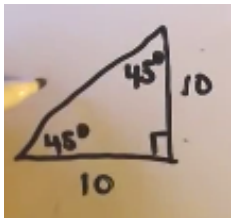
Solve for c.



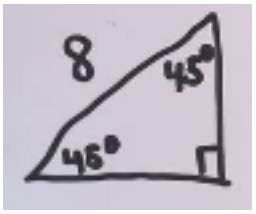
Ex. 1



Ex. 2

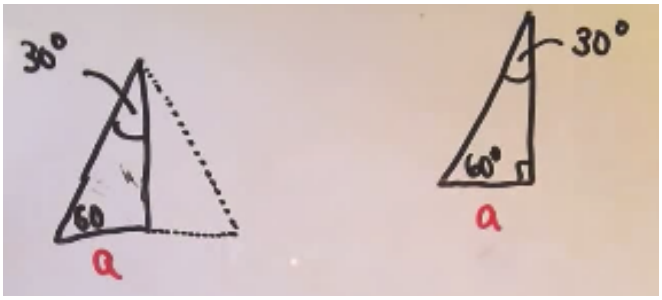


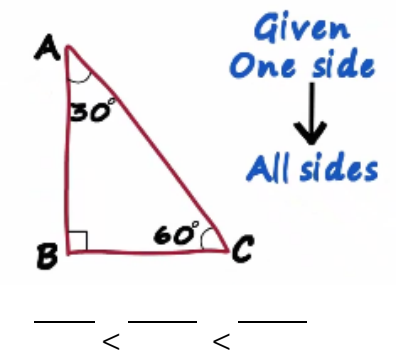
Ex. 3



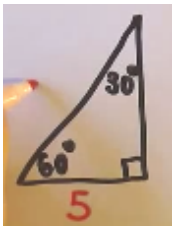
30 – 60 – 90 PROOF

Solve for the altitude.

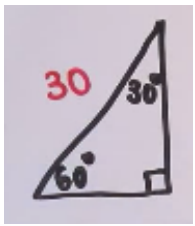




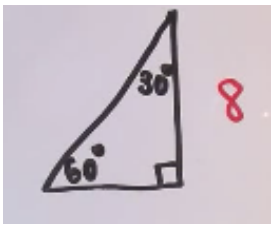
Ex. 1



Ex. 2

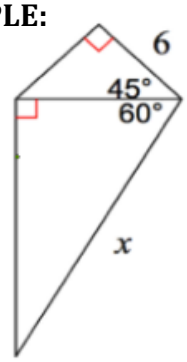


Ex. 3



FINAL EXAMPLE:

Find x and y.



SUMMARY

_____

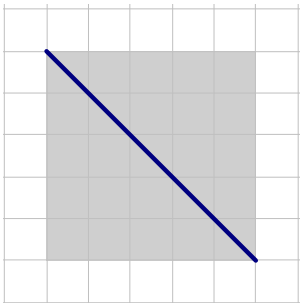
_____

_____

45 – 45 – 90 & 30 – 60 – 90
Triangles Activity

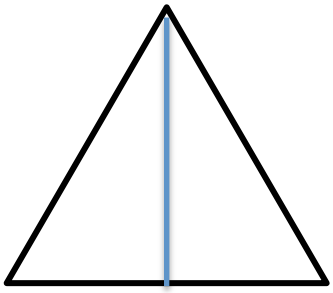
Fill in the angle measure in the image below. below.

Find the equation for the length of diagonal though any square with side *a*.



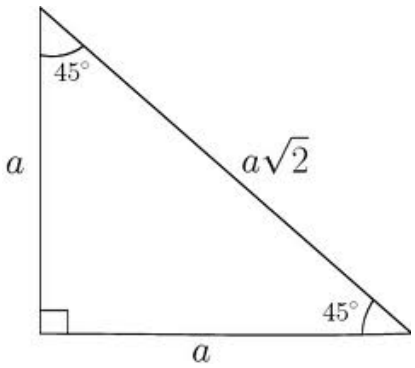
Fill in the angle measure in the image

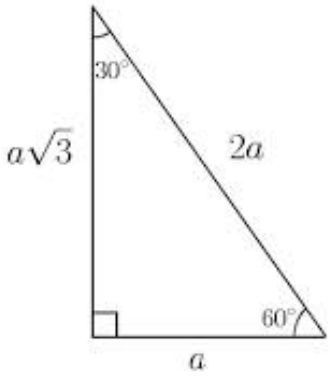
Find the equation for the lenth of the altitude of any equilateral triangle.



I----- **a** -----I

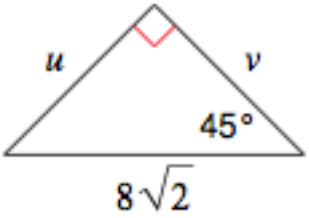
Summarizing the pattern:



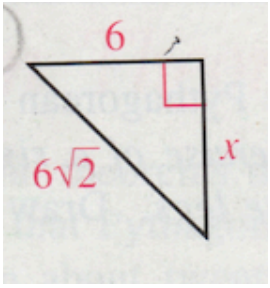


PRACTICE PROBLEMS

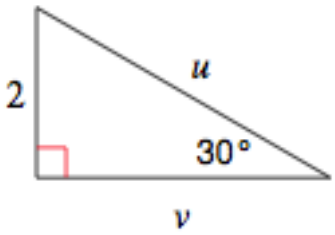
1.



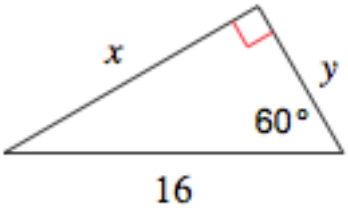
2.



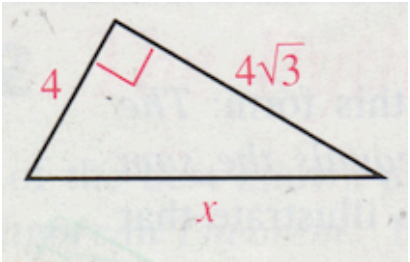
3.



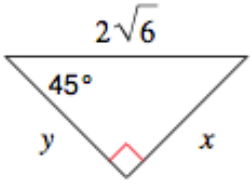
4.



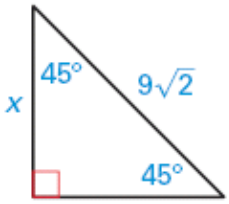
5.



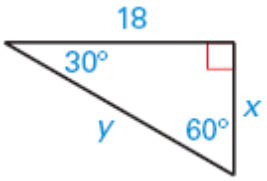
6.



7.

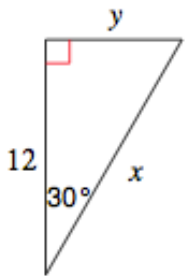


8.

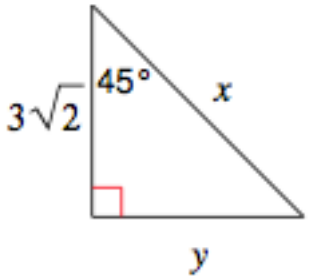


Find x.

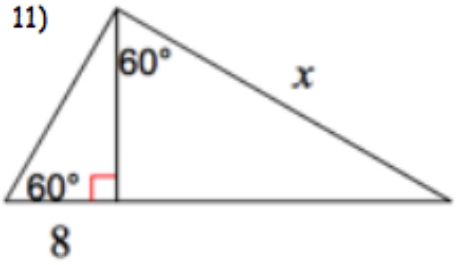
9.



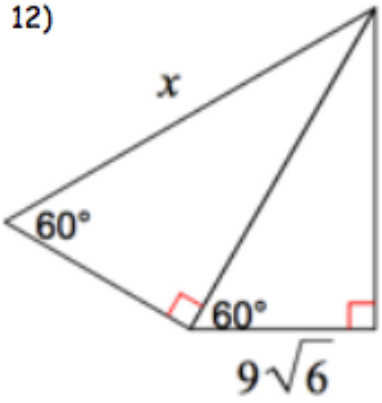
10.



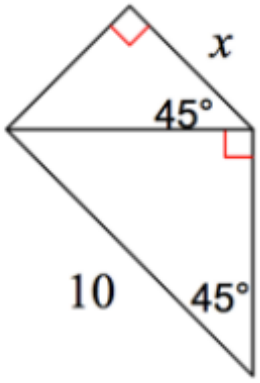
11)



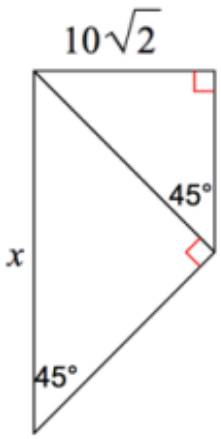
12)



12. Find x.



13. Find x.

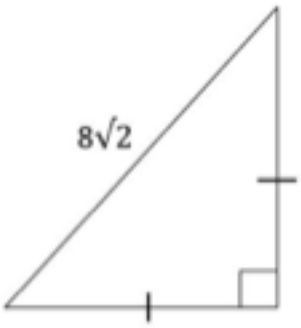


For questions 14 and 15, make a drawing and answer the question.

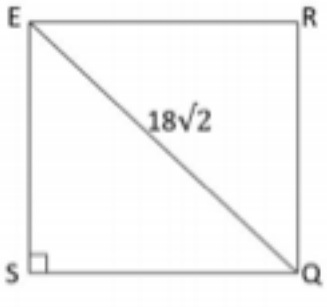
14. Find the perimeter of a square with diagonal length 12 cm.

15. The perimeter of an equilateral triangle is 36 inches. Find the length of an altitude of the triangle.

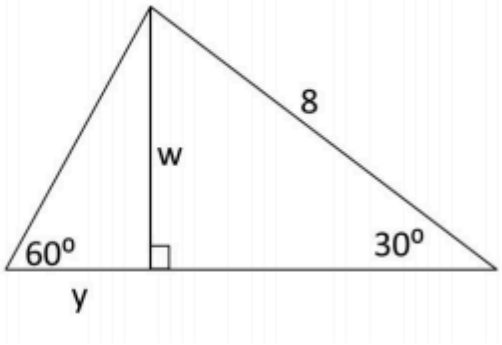
16. What is the area of this triangle?



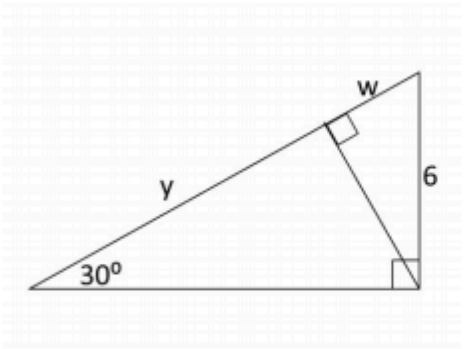
17. . What is the perimeter of square SQRE?



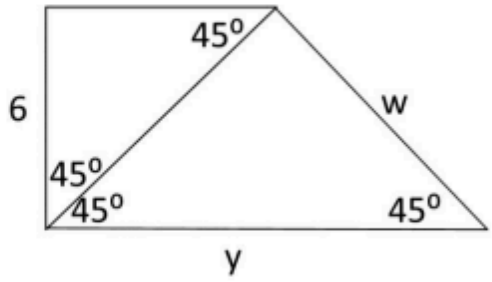
18.



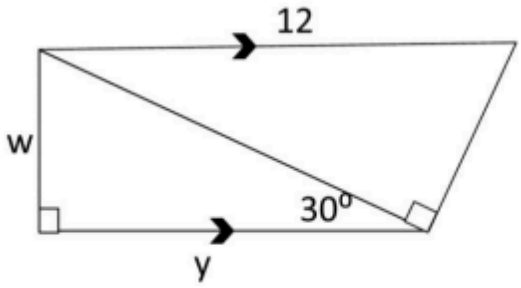
19.



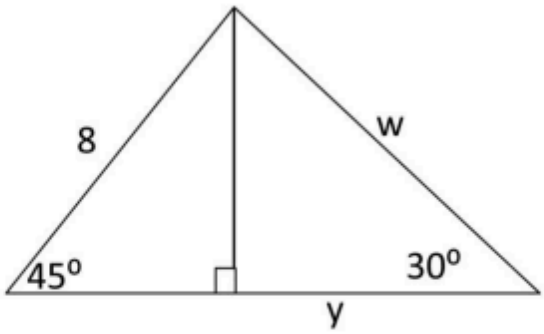
20.



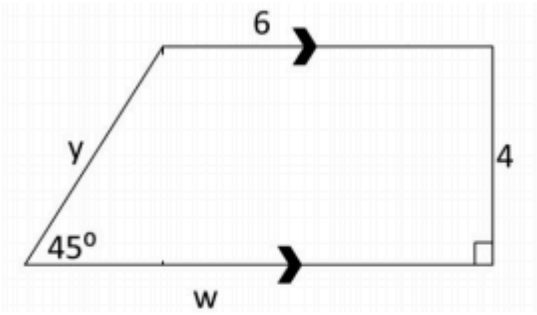
21.



22

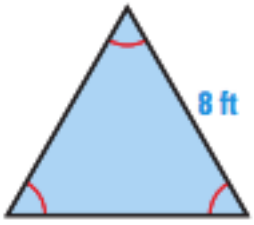


23.

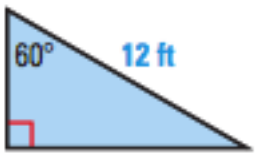


FINDING AREA **Find the area of the figure. Round decimal answers to the nearest tenth.**

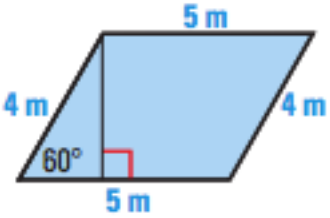
24.



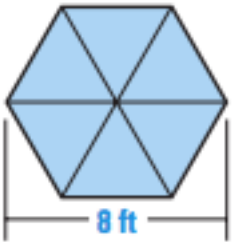
25.



26.

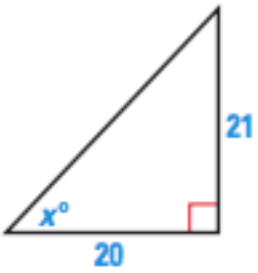


27. **AREA OF A WINDOW** A hexagonal window consists of six congruent panes of glass. Each pane is an equilateral triangle. Find the area of the entire window.



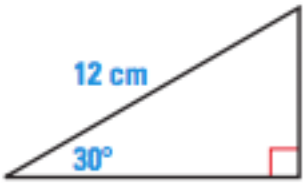
Test Preparation

28. **MULTIPLE CHOICE** Which of the statements below is true about the diagram at the right?



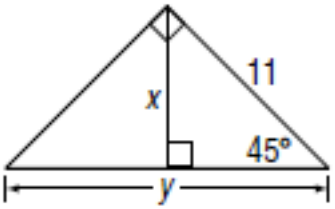
- $x < 45$
- $x = 45$
- $x > 45$
- $x \leq 45$
- Not enough information is given to determine the value of x.

29. **MULTIPLE CHOICE** Find the perimeter of the triangle shown at the right to the nearest tenth of a centimeter.

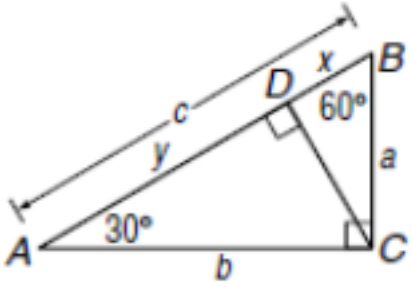


- 28.4 cm
- 30 cm
- 31.2 cm
- 41.6 cm

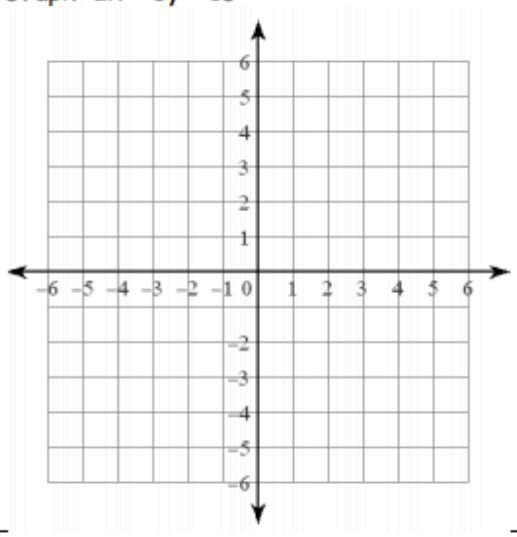
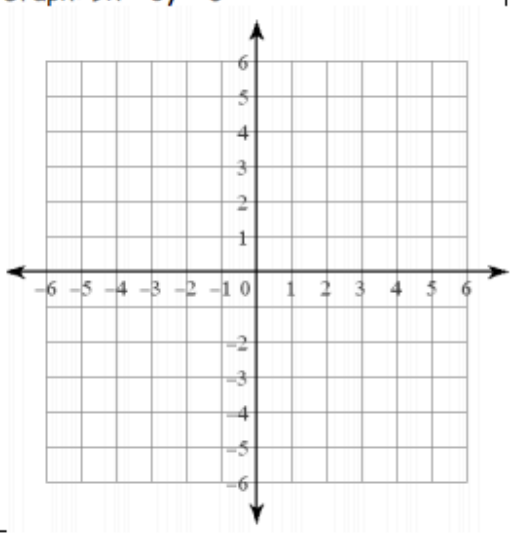
30. **Find x and y .**



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



Algebra Review

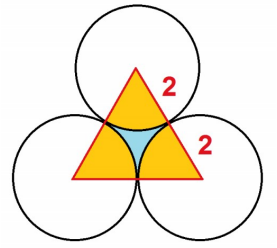
Solve: $2(x+7) > 10$	Solve: $\frac{3x+5}{2} \geq 10$	Factor: $f^2 - 10f + 25$
Factor: $2h^2 + 17h + 21$	Graph: 2x + 3y = 15 	Graph: 9x + 3y = 6 

A triangle has the following characteristics: a 90° angle and side lengths measuring $2\sqrt{3}$ cm and 6 cm. Find the length of the hypotenuse.

APPLICATIONS

1. Which has an area that is greater, a 30-60-90 triangle with hypotenuse of 4 cm or a 45-45-90 triangle with a hypotenuse of 4 cm?

2. The radius is 2 feet long. Find the area, in square feet, of the blue region.



3. If a diagonal of the square is $8\sqrt{3}$, what is the length of each side?

For questions 4 and 5, make a drawing and answer the question.

4. The baseball diamond is in the shape of a square with each side being 90 feet. If the catcher throws out a runner at second base who was trying to steal, how far does he need to throw the ball?

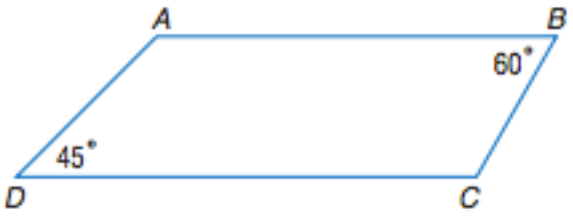
5. The angle of depression from the top of a flagpole to a point on the ground is 30^0.

   a. If the point on the ground is 75 feet from the base of the flagpole, how tall is the pole to the nearest foot?

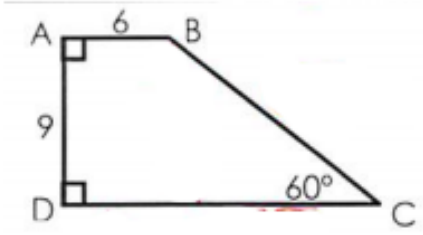
   b. If you're standing 40 feet away from the base of the flagpole and begins to fall, would you have to move?

6.

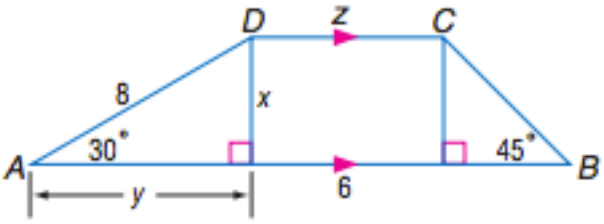
CRITICAL THINKING Given figure $ABCD$, with $\overline{AB} \parallel \overline{DC}$, $m\angle B = 60$, $m\angle D = 45$, $BC = 8$, and $AB = 24$, find the perimeter.



7. Find the perimeter of trapezoid ABCD

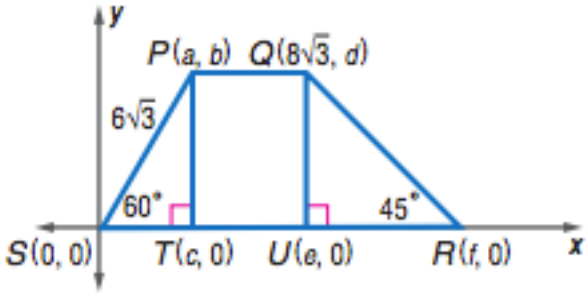


8. Find x, y, z, and the perimeter of ABCD

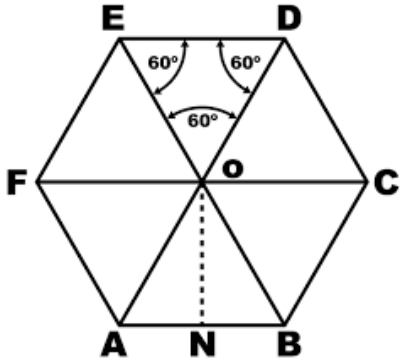


9.

If $\overline{PQ} \parallel \overline{SR}$, use the figure to find a, b, c, d, e, and f.



10. Find the area of the hexagon, given that the side FA = 16 yards



Find the area of the shaded region.