Name:_____Period:_____

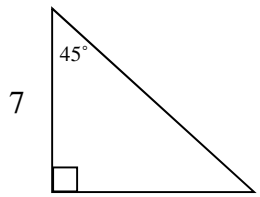
45-45-90 Triangles **Don't forget your book work!!

I. Complete the following table for the 45-45-90 triangles using exact simplified radical values.

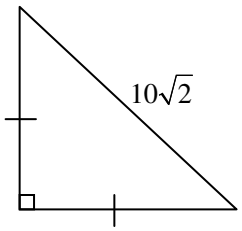
	Leg 1	Leg 2	Hypotenuse
Ratios			
1.	3		
2.			$8\sqrt{2}$
3.			5
4.	$4\sqrt{2}$		

II. Fill in the length of each segment in the following figures.

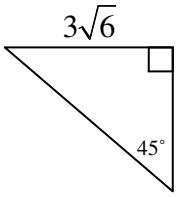
5.



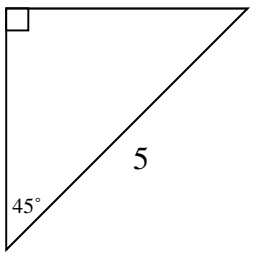
6.



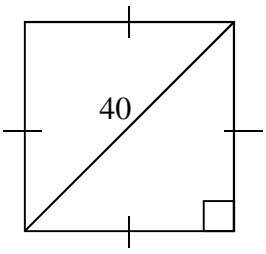
7.



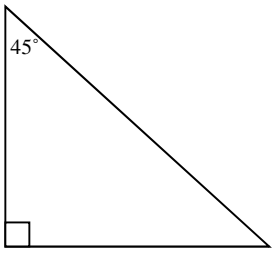
7.



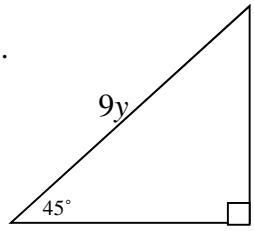
8.



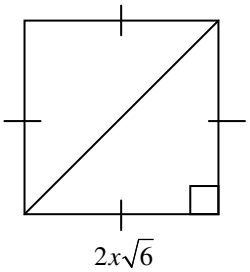
9.



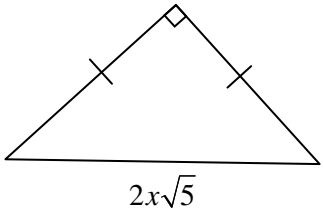
10.



11.



12.



For 13 – 15, tell if the given values could be the sides of a 45°-45°-90° triangle.

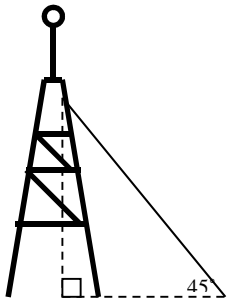
13. $3\sqrt{70}$, $3\sqrt{70}$, $12\sqrt{35}$

14. $\sqrt{10}$, $\sqrt{10}$, $2\sqrt{5}$

15. $\sqrt{6}$, $\sqrt{6}$, $\sqrt{3}$

16. Sam has a square backyard divided into 2 sections along the 40 foot diagonal. One of these sections is used as a garden. What is the approximate **area** of the garden?

17. A guy wire supporting a radio tower is positioned 145 feet up the tower. It forms a 45° angle with the ground. About how long is the wire?



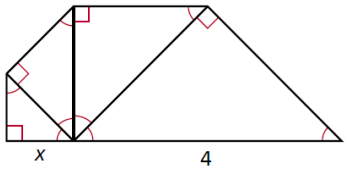
18. Find the perimeter and area of a 45°-45°-90° triangle with a hypotenuse length 12 inches. Give your answers in simplest radical form.

19. Find the perimeter and area of a square with diagonal length 18 meters. Give your answers in simplest radical form.

20. This triangle loom is made from wood strips shaped into a 45°-45°-90° triangle. Pegs are placed every $\frac{1}{2}$ inch along each leg.

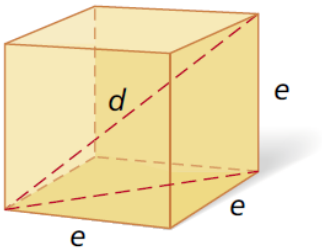
Suppose you make a loom with an 18-inch hypotenuse. Approximately how many pegs will you need?

21. Find the value of x in simplest radical form.

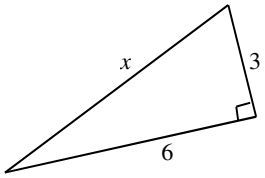


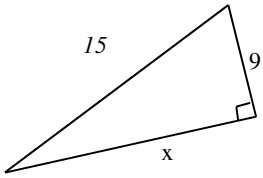
22. Each edge of the cube has length e.

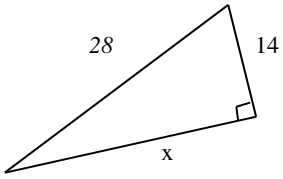
a. Find the diagonal length d if $e = 1$, $e = 2$, and $e = 3$. Give the answers in simplest radical form.



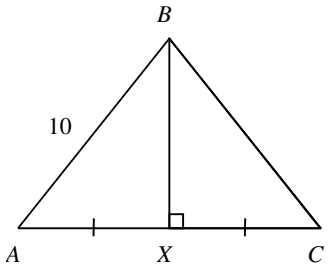
23. Solve for the following. Leave answer in simplest radical form.







24. Given AC = 10, find BX in simplest radical form.



Name:_____Period:_____

30-60-90 Triangles

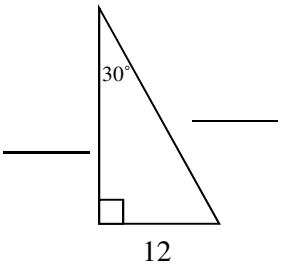
1. In a 30˚-60˚-90˚ triangle, the short leg is located across from what angle?_____

Complete the table for a 30˚-60˚-90˚ triangle using exact (radical) values.

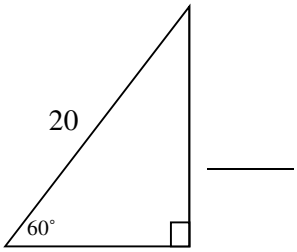
	Short Leg	**Long Leg**	**Hypotenuse**
Ratios			
2.	5		
3.			14
4.		$6\sqrt{3}$	
5.	$2\sqrt{3}$		
6.		9	
7.			$10y\sqrt{3}$
8.	$7ab\sqrt{2}$		

Fill in the blanks for the special right triangles.

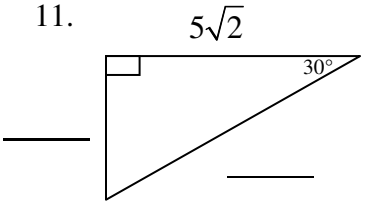
9.



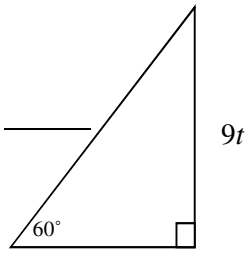
10.



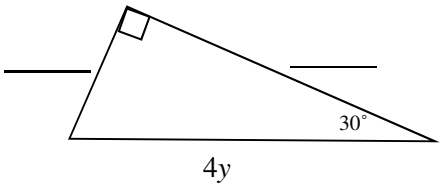
11.



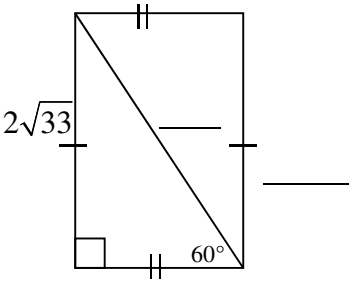
12.



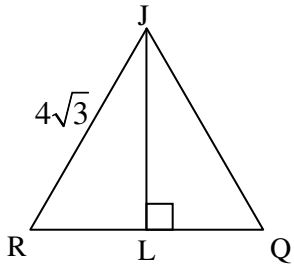
13.



14.



15. ΔRJQ is equilateral.



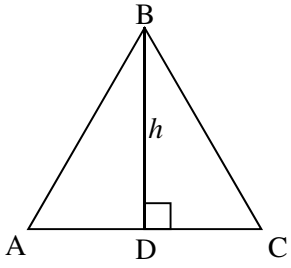
JQ =_____

RL = _____

LQ = _____

JL = _____

16. ΔABC is equilateral.



AD =_____

DC = _____

AB = _____

BC = _____

For 17 – 20, tell if the given values could be the sides of a 30°-60°-90° triangle.

17. $2,\ 2\sqrt{3},\ 4$

18. $9,\ 3,\ 3\sqrt{3}$

19. $\sqrt{3},\ 3,\ \sqrt{6}$

20. $4\sqrt{6},\ 2\sqrt{6},\ 6\sqrt{2}$

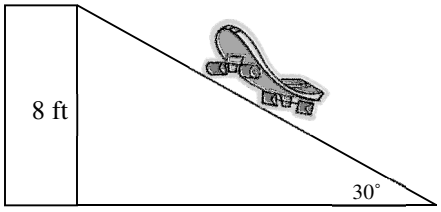
21. The hypotenuse of a 30-60-90 triangle is $12\sqrt{2}$ ft. Find the **area** of the triangle.

22. Find the perimeter and area of a 30°-60°-90° triangle with hypotenuse length 28 centimeters.

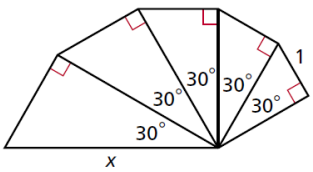
23. Find the perimeter and area of an equilateral triangle with side length 4 feet.

24. Find the perimeter and area of an equilateral triangle with height 30 yards.

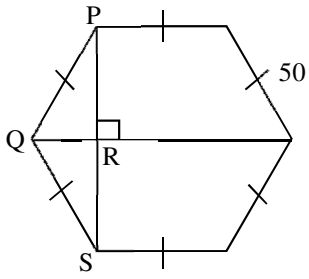
25. A skate board ramp must be set up to rise from the ground at 30˚. If the height from the ground to the platform is 8 feet, how far away from the platform must the ramp be set?



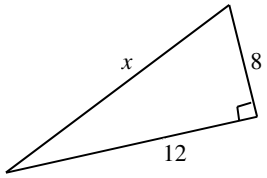
26. Find the value of *x* in simplest radical form.

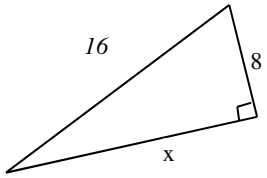


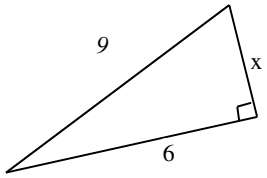
27. Find QR and PS. Answer in simplest radical form.



28. Solve for the following. Leave answer in simplest radical form.







29. The perimeter of a rectangle is 60 in. The length is four times the width. What is the length of the diagonal?