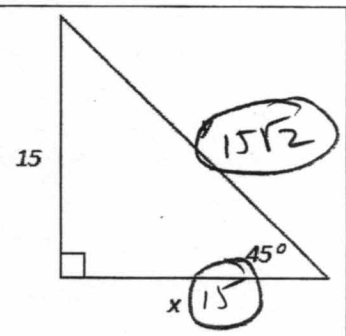
Special Right Triangle Practice

Solve for the missing sides in each of the given triangles using the relationships for special right triangles. Leave all answers as simplified radicals.

1.



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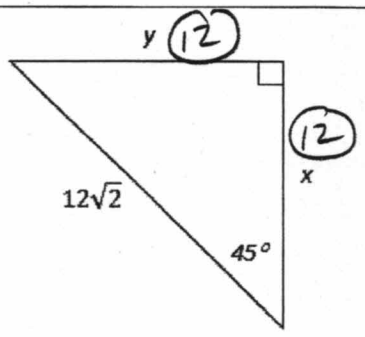

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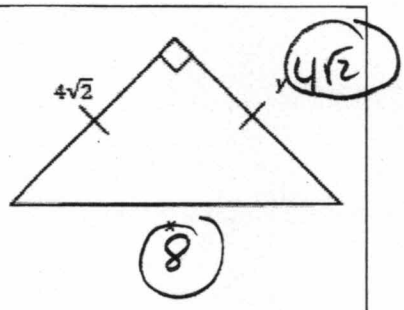

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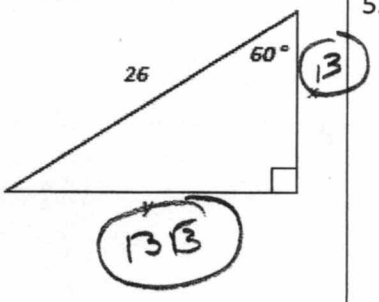

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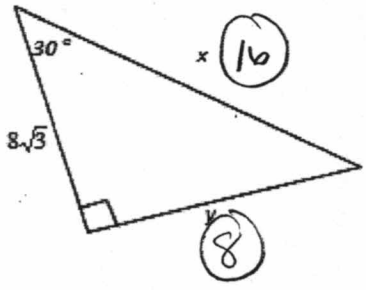

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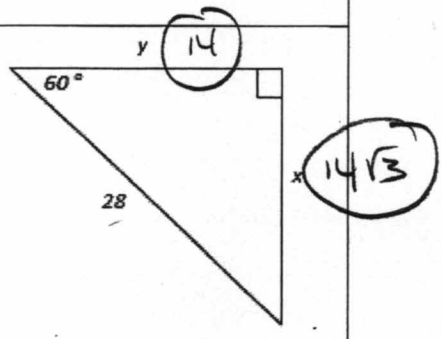

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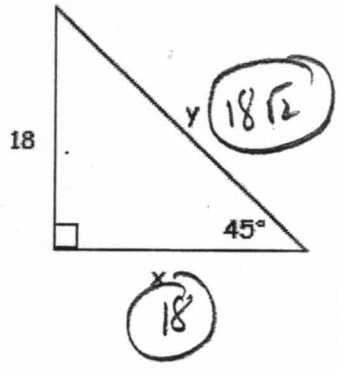

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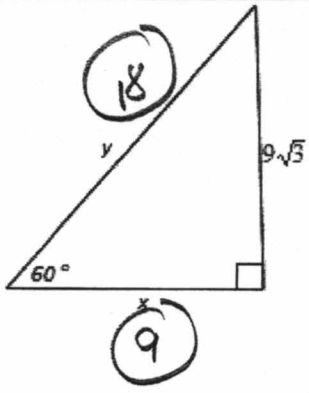

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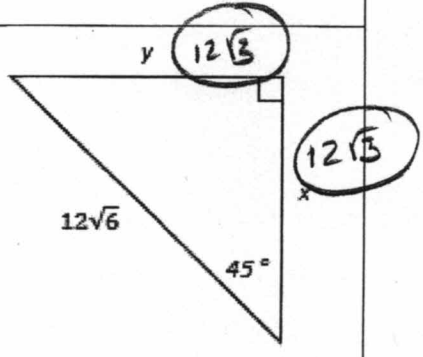
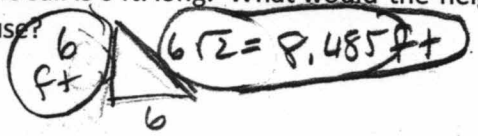


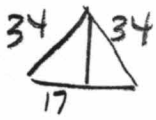
Special Right Triangle Word Problems - Leave each answer in Simplest Radical Form.

1. Ryan quit bowling and took up sailing. His sail for his sailboat is a 45--45--90 Right Triangle. The base of the sail is 6 ft. long. What would the height of the sail be? What is the length of the hypotenuse?



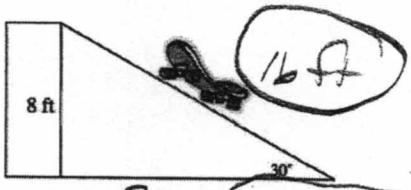
$6\sqrt{2} = 8.485$ ft

2. Joe saw a "Yield" sign and "borrowed it." He wanted to hang it up in his room because it looked cool and it was in the shape of an Equilateral Triangle. The length of one side is 34 inches. What is the height of the sign?



$17\sqrt{3} = 29.445$ in

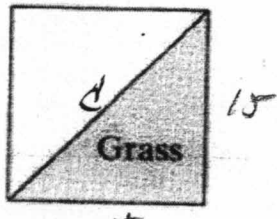
3. Jeremy is going to show off his skateboarding ability to his Geometry class. He has a skate board ramp must be set up to rise from the ground at 30°. If the height from the ground to the platform is 8 feet, how far is the ramp to the platform? How long is the ramp up to the top of the platform?



16 ft

$8\sqrt{3} = 13.856$ ft

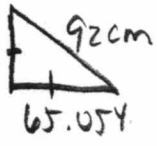
4. Tristan has a square back yard with an area of 225ft sq. He started to plant grass seed but only did half his yard. (He wanted to play GTA5 Heists instead) What is the perimeter of the Grass section of the backyard?



$x^2 = 225$ $d = 15\sqrt{2} = 21.213$

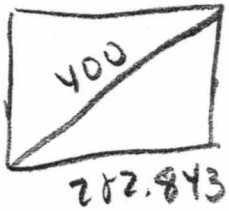
$x = 15$ ft $P = 15 + 15 + 21.213 =$ 51.213 ft

5. Lorena and Karla are creating an art project in the shape of a right triangle. They have a 92 cm--long piece of wood, which is to be used for the hypotenuse. The two legs of the triangular support are of equal length. Approximately how many more centimeters of wood do they need to complete the support?



$\frac{92}{\sqrt{2}} = 65.054 \times 2$ legs $=$ 130.108 cm

6. Mr. Misuraca has a tree farm. Half the farm is trees that he uses to make pencils, the other half are maple trees that he uses to make "Mis's Sweet Love Maple Syrup". The farm is a Square divided into 2 sections along a 400 foot diagonal. What is the area of the Maple Tree Farm section?



80,000.163 ft^2

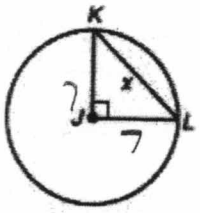
LESSON 5-8

Challenge

Applying Properties of Special Right Triangles

Use the properties of special right triangles to solve each problem. Give your answers in simplest radical form.

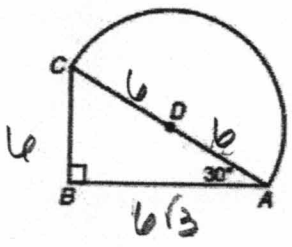
1. The circumference of circle *J* is 14π. What is the value of *x*?



$C = 2\pi r$
$14\pi = 2\pi r$
$r = 7$

$7\sqrt{2}$

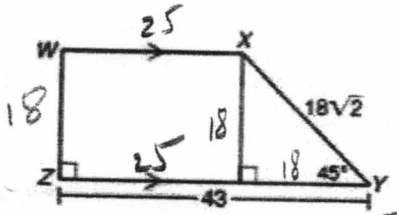
2. The area of semicircle *D* is 18π. What is the perimeter of $\triangle ABC$?



$\frac{1}{2}\pi r^2 = 18\pi$
$r^2 = 36$
$r = \pm 6$

$18 + 6\sqrt{3}$

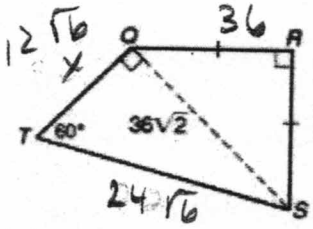
3. Find the perimeter of quadrilateral *WXYZ*.



$43 + 18 + 25 + 18\sqrt{2}$

$86 + 18\sqrt{2}$

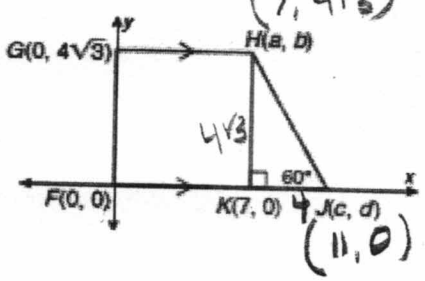
4. Find the perimeter of quadrilateral *QRST*



$36\sqrt{2} = x\sqrt{3}$
$\left(\frac{\sqrt{3}}{\sqrt{3}}\right)\frac{36\sqrt{2}}{\sqrt{3}} = x$
$\frac{36\sqrt{6}}{3} = x = 1$

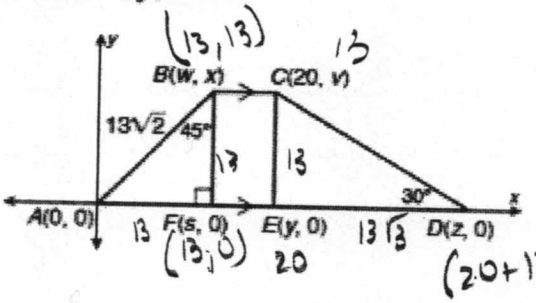
$72 + 36\sqrt{6}$

5. Find *a*, *b*, *c*, and *d*.



$(7, 4\sqrt{3})$
$(11, 0)$

6. Find *w*, *x*, *y*, and *z*.



$(13, 13)$
13
$(13, 0)$
$(20 + 13\sqrt{3}, 0)$