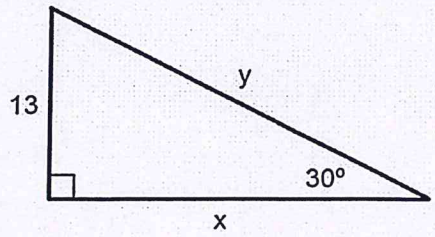
Bellwork Alg 2 Monday, March 11, 2019

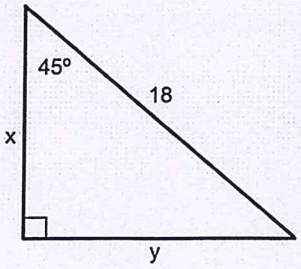
Find the exact value of x and y in each special right triangle.

1.



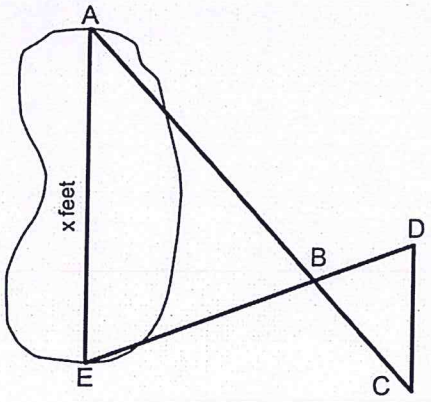
$x =$ $y =$

2.

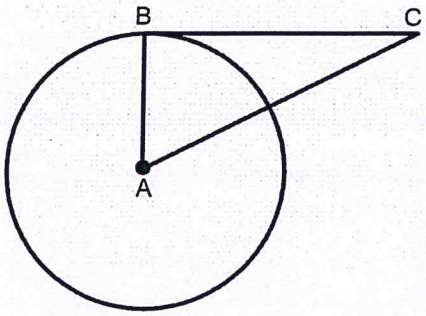


$x =$ $y =$

3. A surveyor wants to find the length, x, in feet, across a lake as represented in the sketch below. The lengths represented by AB, EB, BD, and CD on the sketch were determined to be 1800 ft, 1400 ft, 700 ft, and 800 ft, respectively. Segments AC and DE intersect at B, and $\angle AEB$ and $\angle CDB$ have the same measure. What is the value of x?



4. In circle A below BC is tangent to the circle at pt. B. Circle A has an area of 36π. If $AB = \frac{1}{2}AC$, what is the area of $\triangle ABC$. Round to the nearest tenth. NOTE: A radius drawn to the point of tangency is perpendicular to the tangent line.



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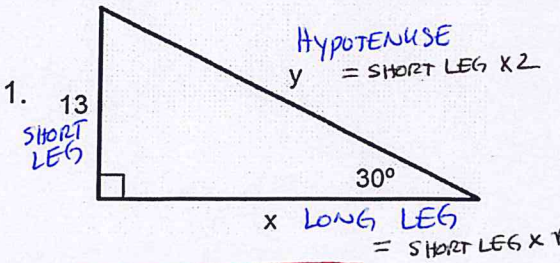
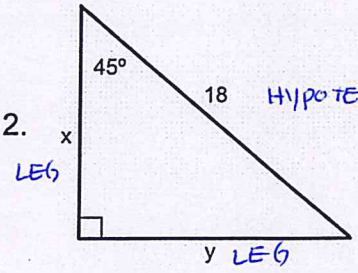
ANSWERS

Find the exact value of x and y in each special right triangle.

1. 

$x = 13\sqrt{3}$ $y = 26$

2. 

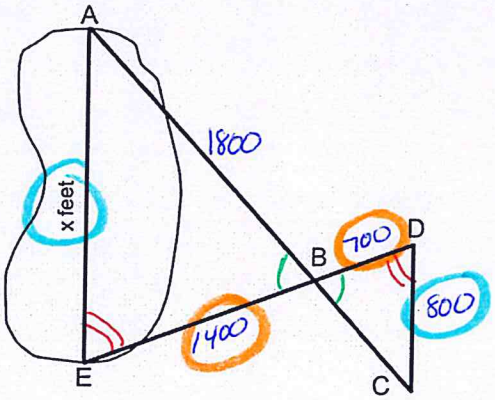
$x = 9\sqrt{2}$ $y = 9\sqrt{2}$

* LEGS ARE EQUAL
* LEG = $\frac{\text{HYPOT}}{\sqrt{2}}$

LEG = $\frac{18}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

$= \frac{18\sqrt{2}}{2} = 9\sqrt{2}$

3. A surveyor wants to find the length, x, in feet, across a lake as represented in the sketch below. The lengths represented by AB, EB, BD, and CD on the sketch were determined to be 1800 ft, 1400 ft, 700 ft, and 800 ft, respectively. Segments AC and DE intersect at B, and $\angle AEB$ and $\angle CDB$ have the same measure. What is the value of x?

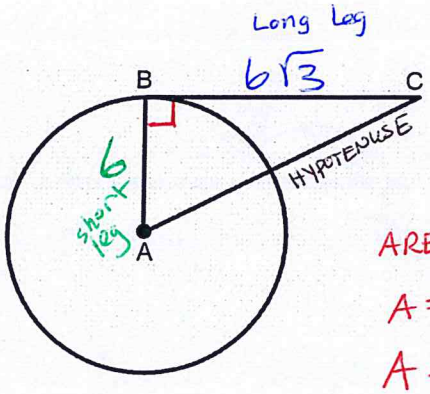


- THESE Δ's are similar
- Corresponding sides are proportional

$\frac{1400}{700} = \frac{x}{800}$ Now cross multiply

$x = 1600$ ft

4. In circle A below BC is tangent to the circle at pt. B. Circle A has an area of 36π. If $AB = \frac{1}{2}AC$, what is the area of $\triangle ABC$. Round to the nearest tenth. NOTE: A radius drawn to the point of tangency is perpendicular to the tangent line.



* Area of Circle A = 36π

* area of any circle $A = \pi r^2$

$\pi r^2 = 36\pi$

$r^2 = 6$ $r = 6$

AB is a radius AB = 6

Since $AB = \frac{1}{2}AC$ ΔABC is a 30°-60°-90° Δ

BC = Long leg = short leg x √3

$BC = 6\sqrt{3}$

AREA of Δ

$A = \frac{1}{2}bh$

$A = \frac{1}{2}(6)(6\sqrt{3})$

$A = 18\sqrt{3}$