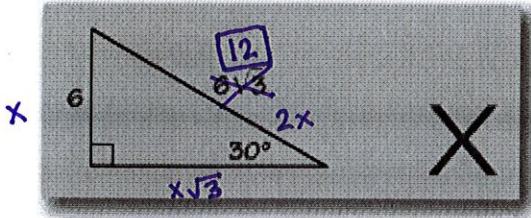
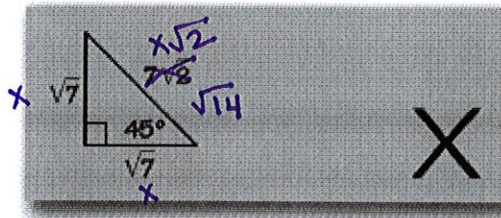


1. Describe and correct the error in finding the length of the hypotenuse.



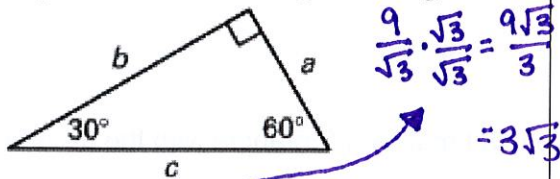
To go from short leg to hypotenuse, you multiply by 2, not $\sqrt{3}$

2. Describe and correct the error in finding the length of the hypotenuse.



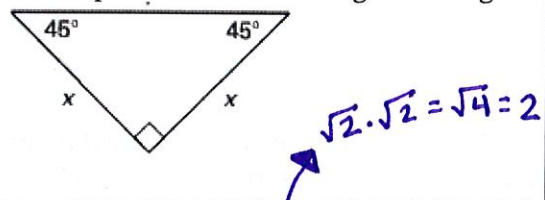
To go from leg to hypotenuse, you multiply by $\sqrt{2}$. $\sqrt{7} \cdot \sqrt{2} = \sqrt{14}$

3. Complete the table for the given triangle.



x	a SL	9	$3\sqrt{3}$	5	11	8
$x\sqrt{3}$	b LL	$9\sqrt{3}$	9	$5\sqrt{3}$	$11\sqrt{3}$	$8\sqrt{3}$
$2x$	c H	18	$6\sqrt{3}$	10	22	16

4. Complete the table for the given triangle.



x leg	5	4	$\sqrt{2}$	9	$12\sqrt{2}$
y	$5\sqrt{2}$	$4\sqrt{2}$	2	$9\sqrt{2}$	24

5.

$x = \text{leg}$
 $y = \text{hypotenuse}$

$$\frac{24}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{24\sqrt{2}}{2} = 12\sqrt{2}$$

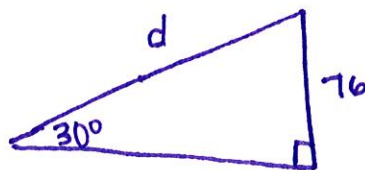
The side lengths of a triangle are given. Determine whether it is a $45^\circ-45^\circ-90^\circ$ triangle, a $30^\circ-60^\circ-90^\circ$ triangle or neither.

5. 6, 12, 8
 none

6. 5, 5, $\sqrt{2}$
 none

7. 2, 4, $2\sqrt{3}$
 $30^\circ-60^\circ-90^\circ$

8. The escalator at the Wilshire/Vermont Metro Rail Station in Los Angeles rises 76 feet at a 30° angle. To find the distance, d , a person travels on the escalator stairs, write and solve a trigonometric equation.

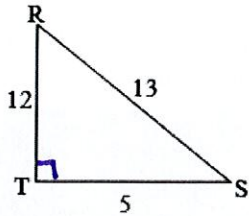


$$\sin 30 = \frac{76}{d}$$

$$d = \frac{76}{\sin 30}$$

$$d \approx 152 \text{ ft.}$$

9. $\angle T$ is a right angle. Find the sine, cosine, and tangent of $\angle S$. Write your answers as both ratios and decimals. Round to the tenth.

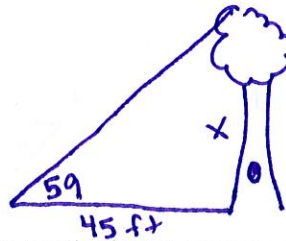


$$\sin S = \frac{12}{13} \approx 0.9$$

$$\cos S = \frac{5}{13} \approx 0.4$$

$$\tan S = \frac{12}{5} \approx 2.4$$

10. You are measuring the height of a Sitka spruce tree in Alaska. You stand 45 feet from the base of the tree. You measure the angle of elevation from a point on the ground to the top of the tree to be 59° . To estimate the height of the tree, write and solve a trigonometric equation.



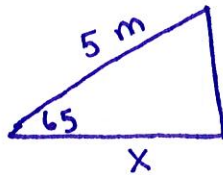
$$\tan 59 = \frac{x}{45}$$

$$x \approx 74.89 \text{ ft}$$

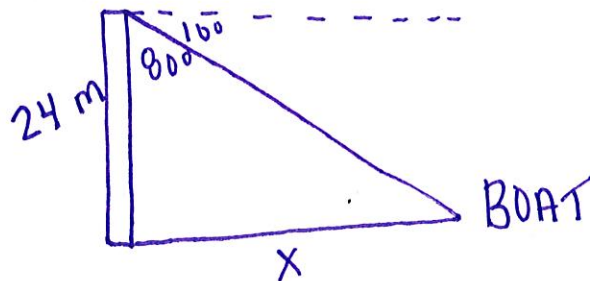
11. A ladder 5 m long leans against a vertical wall and makes a 65° angle with the ground. How far is the foot of the ladder from the wall?

$$\cos 65 = \frac{x}{5}$$

$$x \approx 2.11 \text{ ft}$$



12. An operator at the top of a lighthouse sights a sailboat. The point from which the sighting is made is 24 m above sea level. The angle of depression of the sighting is 10° . How far is the boat from the base of the lighthouse?



$$\tan 80 = \frac{x}{24}$$

$$x \approx 136.11 \text{ m}$$