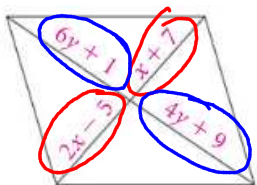


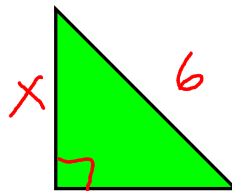


Find the value(s) of the variable(s) in each parallelogram.

45.

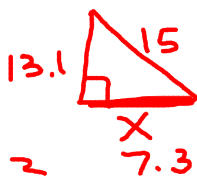
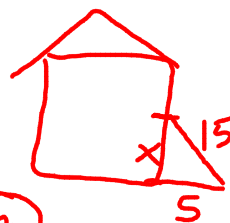


(14)



4, 9, 16, 25, 36, 49, 64  
81, 100, 121, 144, ...

$$\begin{aligned}
 x^2 + x^2 &= 6^2 \\
 2x^2 &= 36 \\
 \frac{2x^2}{2} &= \frac{36}{2} \\
 \sqrt{x^2} &= \sqrt{18} \\
 x &= \sqrt{9 \cdot 2} \\
 &= 3\sqrt{2}
 \end{aligned}$$

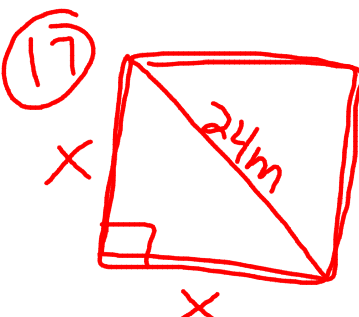


(a)

$$\begin{aligned}
 x^2 + 5^2 &= 15^2 \\
 x^2 + 25 &= 225 \\
 -25 & \quad -25 \\
 \sqrt{x^2} &= \sqrt{200} \\
 x &= 14.1 \text{ ft}
 \end{aligned}$$

$$\begin{aligned}
 x^2 + 13.1^2 &= 15^2 \\
 x^2 + 171.61 &= 225 \\
 -171.61 & \quad -171.61 \\
 \sqrt{x^2} &= \sqrt{53.39} \\
 x &= 7.3
 \end{aligned}$$

(17)



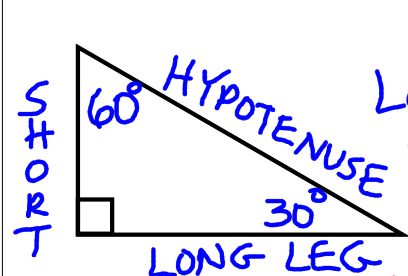
$$x^2 + x^2 = 24^2$$

$$2x^2 = 576$$

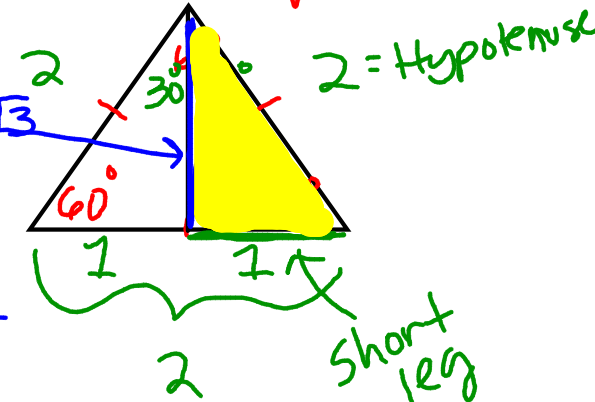
$$\sqrt{x^2} = \sqrt{288}$$

$$x = 17\text{m}$$

Day 56 8.2 Special Right Triangles  
30° - 60° - 90°



equilateral  $\Delta$



Long Leg  $\sqrt{3}$

2 = Hypotenuse

Short leg

$$1^2 + b^2 = 2^2$$

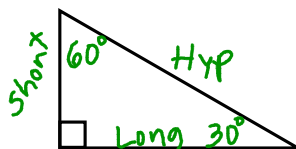
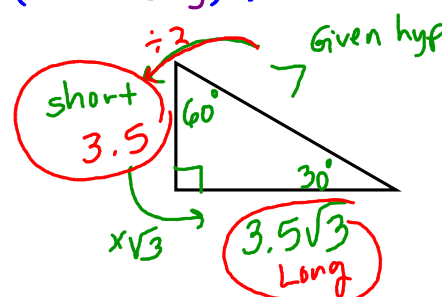
$$1 + b^2 = 4$$

$$\sqrt{b^2} = \sqrt{3}$$

$$b = \sqrt{3}$$

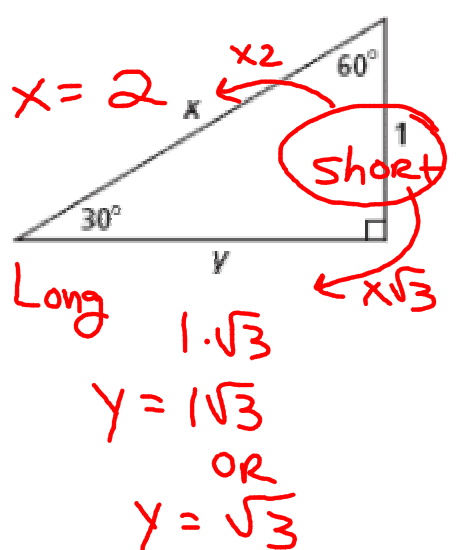
$\sqrt{3}$

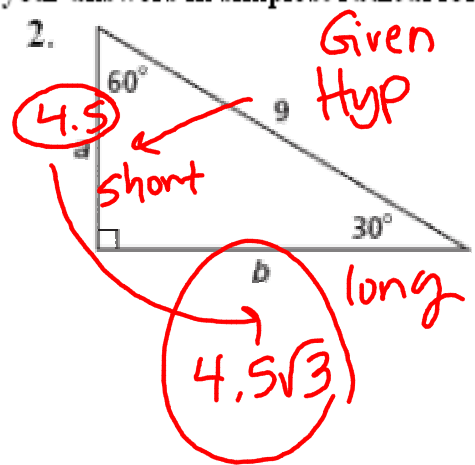
- If you know the leg adjacent to  $60^\circ$  (Short Leg)  
 $\text{Hypotenuse} = 2 \cdot (\text{Short Leg})$   
 $\text{Leg adjacent to } 30^\circ = (\text{Short Leg}) \cdot \sqrt{3}$
- If you know the leg adjacent to  $30^\circ$  (Long Leg)  
 $\text{Short Leg} = \text{Long Leg} \div \sqrt{3}$   
 $\text{Hypotenuse} = 2 \cdot (\text{Short Leg})$
- If you know the hypotenuse:  
 $\text{Short Leg} = \text{Hypotenuse} \div 2$   
 $\text{Long Leg} = (\text{Short Leg}) \cdot \sqrt{3}$

### Practice 8-2

Find the value of each variable. Leave your answers in simplest radical form.

- 

$x = 2$   
 Short leg: 1  
 Long leg:  $1 \cdot \sqrt{3}$   
 $y = 1\sqrt{3}$   
 OR  
 $y = \sqrt{3}$
- 

Short leg:  $a = 4.5$   
 Long leg:  $b = 4.5\sqrt{3}$   
 Hypotenuse: 9 (Given Hyp)

3. 
$$\frac{25}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{25\sqrt{3}}{\sqrt{9}} = \frac{25\sqrt{3}}{3}$$

$$\frac{25\sqrt{3}}{3} \cdot 2 = \frac{50\sqrt{3}}{3}$$

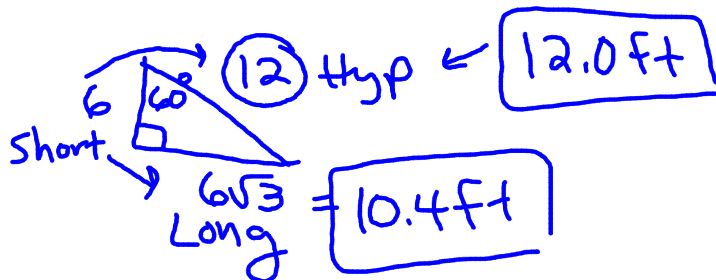
6. 
$$\frac{14}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{14\sqrt{3}}{\sqrt{9}} = \frac{14\sqrt{3}}{3}$$

$$\frac{2 \cdot 14\sqrt{3}}{3} = \frac{28\sqrt{3}}{3} \text{ hyp}$$

8. 
$$30 \div 2 = 15$$

$$15 \cdot \sqrt{3} = 15\sqrt{3}$$

12. In a  $30^\circ - 60^\circ - 90^\circ$  triangle, the shorter leg is 6 ft long. Find the length to the nearest tenth of a foot of the other two sides.



13. Each side of a rhombus is 14 in. long. Two of the sides form a  $60^\circ$  angle. Find the area of the rhombus. Round your answer to the nearest square inch.