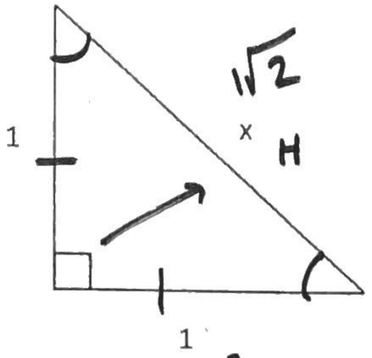
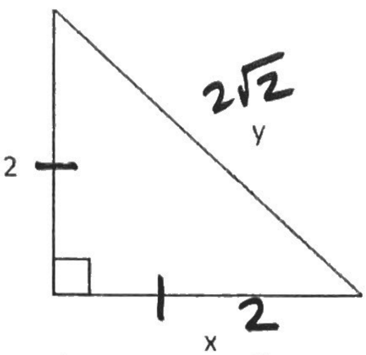
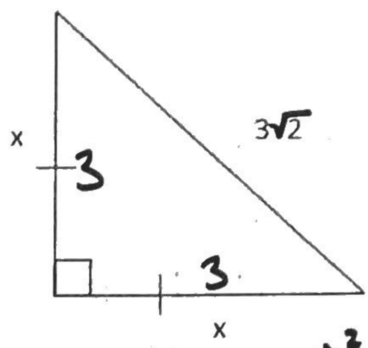
6.2 Special Right Triangles Guided Notes Name: Key

- Use the Pythagorean theorem to find the missing sides of these right triangles (put your answer in simplest radical form).







$1^2+1^2=x^2$

$1+1=x^2$

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

$\boxed{x=\sqrt{2}}$

$2^2+2^2=y^2$

$4+4=y^2$

$\sqrt{8}=\sqrt{y^2}$

4 2

2 2

$\boxed{2\sqrt{2}}$

$x^2+x^2=(3\sqrt{2})^2$

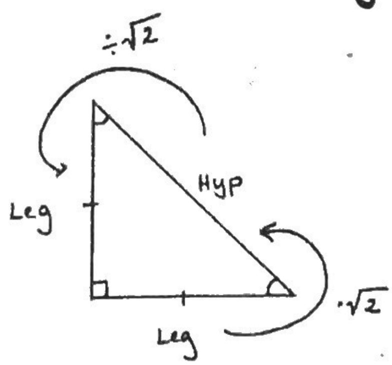
$\frac{2x^2}{2}=\frac{18}{2}$

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

$\boxed{x=3}$

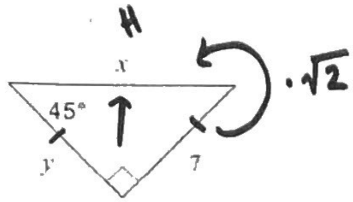
45°45° 90° (Isosceles Right Triangle)

- YES, we can use the Pythagorean theorem to find missing sides for all right triangles, but there is a SHORTCUT for a 45 45 90 right triangle.
- To go from LEG to HYPOTENUSE: multiply by $\sqrt{2}$ (smaller to larger side)
- To go from HYPOTENUSE to LEG: divide by $\sqrt{2}$ (larger to smaller side)



Practice Problems:

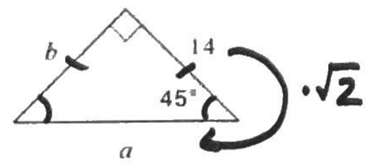
3)



$y = 7$

$x = 7\sqrt{2}$

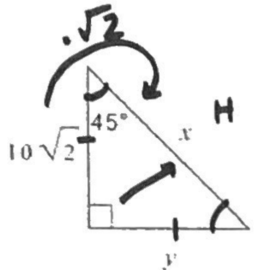
4)



$b = 14$

$a = 14\sqrt{2}$

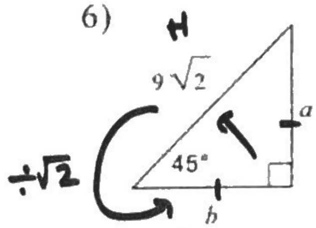
5)



$y = 10\sqrt{2}$

$x = 10\sqrt{2} \cdot \sqrt{2} = 10 \cdot 2 = \boxed{20}$

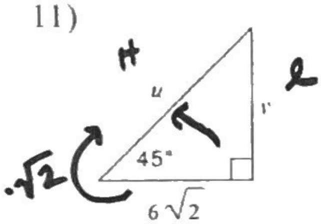
6)



$b = \frac{9\cancel{\sqrt{2}}}{\cancel{\sqrt{2}}} = \boxed{9}$

$a = \boxed{9}$

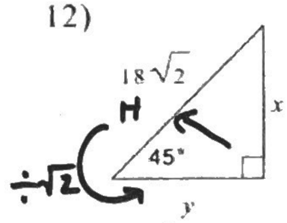
11)



$v = 6\sqrt{2}$

$u = 6\sqrt{2} \cdot \sqrt{2} = 6 \cdot 2 = \boxed{12}$

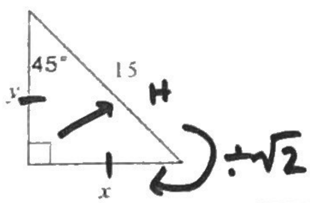
12)



$y = \frac{18\cancel{\sqrt{2}}}{\cancel{\sqrt{2}}} = \boxed{18}$

$x = \boxed{18}$

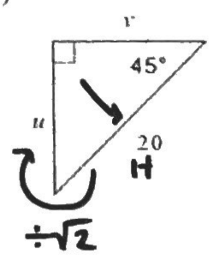
13)



$x = \frac{15}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \boxed{\frac{15\sqrt{2}}{2}}$

$y = \frac{15\sqrt{2}}{2}$

14)



$u = \frac{20}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{20\sqrt{2}}{2}$

$\boxed{10\sqrt{2}}$

$v = \boxed{10\sqrt{2}}$