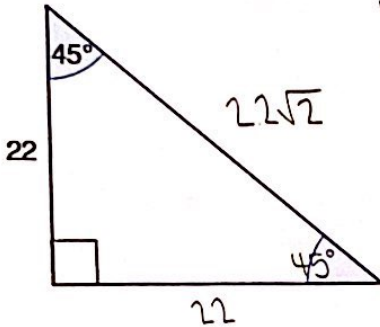


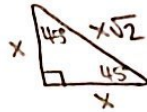
SOLVING RIGHT TRIANGLES (MIXED PRACTICE)

Directions: Solve for all missing side lengths and all missing angle measures on the right triangles below. Show all of your work. Leave your answers in exact form for special right triangles. When using trigonometry, you may round your answers to the nearest tenth.

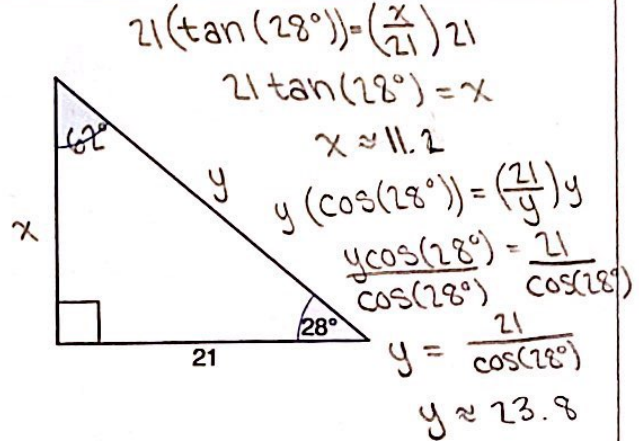
1.



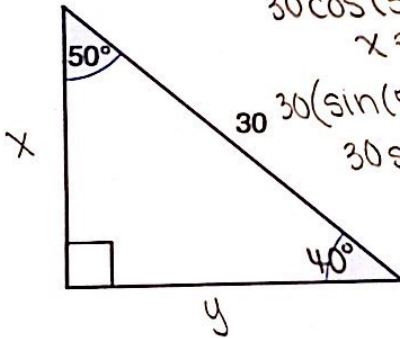
* $45^\circ-45^\circ-90^\circ$
Right
Triangle



2.

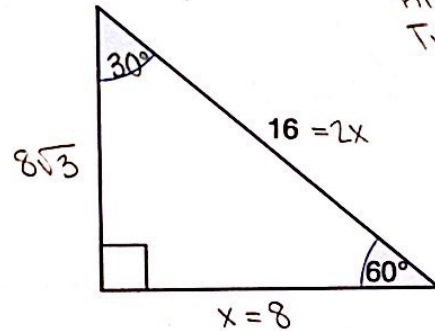


3.

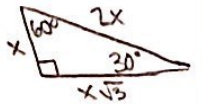


$30(\cos(50^\circ)) = (\frac{x}{30})30$
 $30 \cos(50^\circ) = x$
 $x \approx 19.3$
 $30(\sin(50^\circ)) = (\frac{y}{30})30$
 $30 \sin(50^\circ) = y$
 $y \approx 23.0$

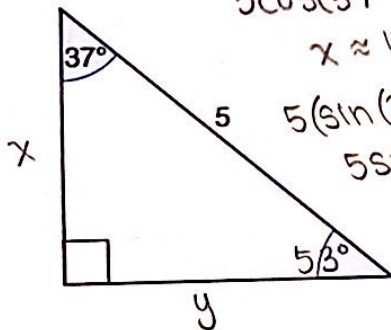
4.



* $30^\circ-60^\circ-90^\circ$
Right
Triangle

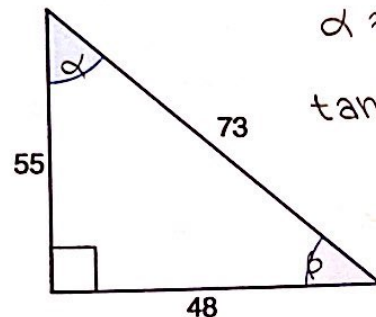


5.



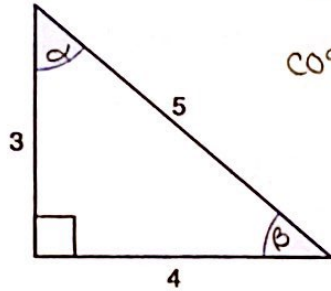
$5(\cos(37^\circ)) = (\frac{x}{5})5$
 $5 \cos(37^\circ) = x$
 $x \approx 4.0$
 $5(\sin(37^\circ)) = (\frac{y}{5})5$
 $5 \sin(37^\circ) = y$
 $y \approx 3.0$

6.



$\tan^{-1}(\frac{48}{55}) = \alpha$
 $\alpha \approx 41.1^\circ$
 $\tan^{-1}(\frac{55}{48}) = \beta$
 $\beta \approx 48.9^\circ$

7.



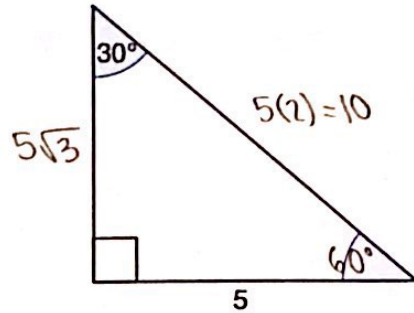
$$\tan^{-1}\left(\frac{4}{3}\right) = \alpha$$

$$\alpha \approx 53.1^\circ$$

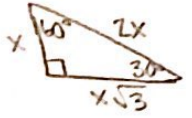
$$\cos^{-1}\left(\frac{4}{5}\right) = \beta$$

$$\beta \approx 36.9^\circ$$

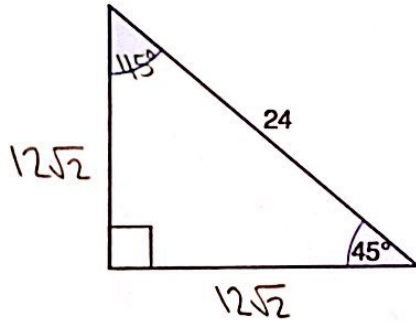
8.



* 30°-60°-90°
Right
Triangle



9.



* 45°-45°-90°
Right
Triangle

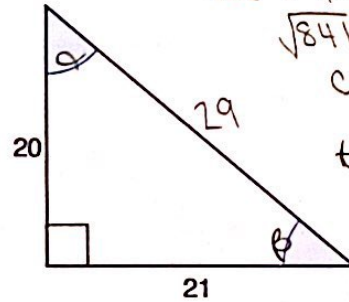


$$\frac{24}{\sqrt{2}} = \frac{x\sqrt{2}}{\sqrt{2}}$$

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

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

10.



$$(20)^2 + (21)^2 = c^2$$

$$400 + 441 = c^2$$

$$\sqrt{841} = \sqrt{c^2}$$

$$c = 29$$

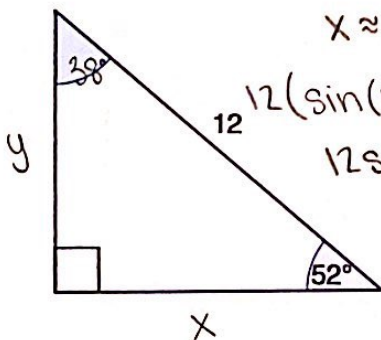
$$\tan^{-1}\left(\frac{21}{20}\right) = \alpha$$

$$\alpha \approx 46.4^\circ$$

$$\tan^{-1}\left(\frac{20}{21}\right) = \beta$$

$$\beta \approx 43.6^\circ$$

11.



$$12(\cos(52^\circ)) = \left(\frac{x}{12}\right)12$$

$$12\cos(52^\circ) = x$$

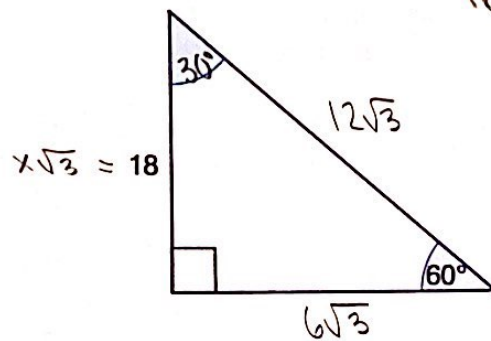
$$x \approx 7.4$$

$$12(\sin(52^\circ)) = \left(\frac{y}{12}\right)12$$

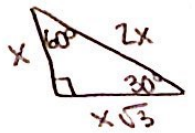
$$12\sin(52^\circ) = y$$

$$y \approx 9.5$$

12.



* 30°-60°-90°
Right
Triangles



$$\frac{x\sqrt{3}}{\sqrt{3}} = \frac{18}{\sqrt{3}}$$

$$x = \frac{18}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$$

$$x = \frac{18\sqrt{3}}{3}$$

$$x = 6\sqrt{3}$$