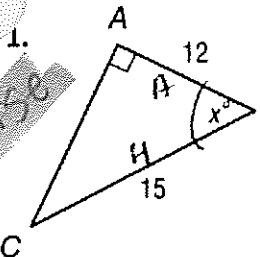
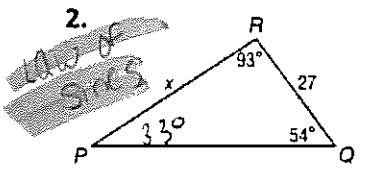
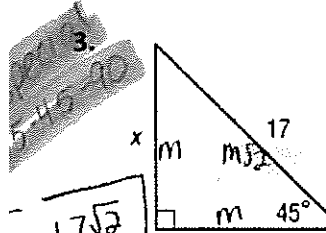
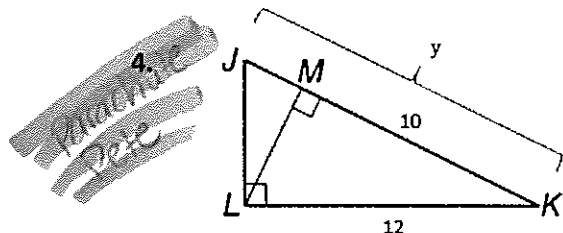


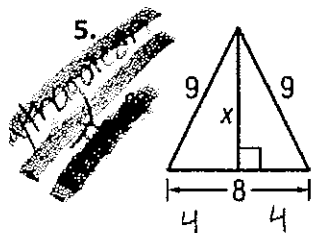
Solve for the given variables. Leave in exact form if possible. If not, round to the nearest hundredth.

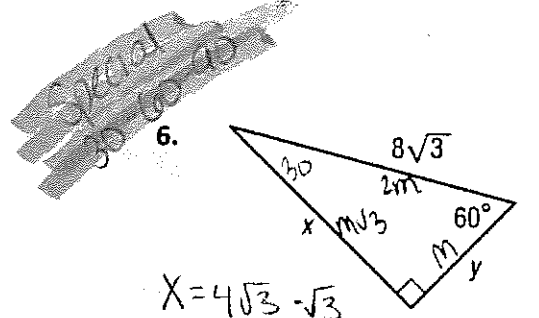
1.  $\cos x = \frac{12}{15}$
 $x = \cos^{-1}\left(\frac{12}{15}\right)$
 $x \approx 36.87$

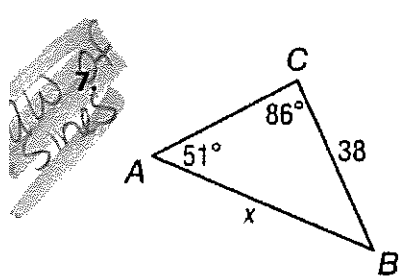
2.  $180 - 93 - 34 = 33$
 $\frac{\sin 33}{27} = \frac{\sin 54}{x}$
 $x = \frac{27(\sin 54)}{\sin(33)}$
 $x = 40.11$

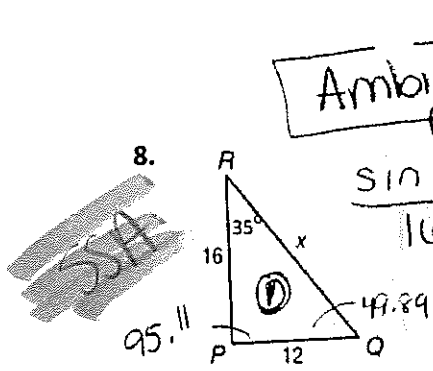
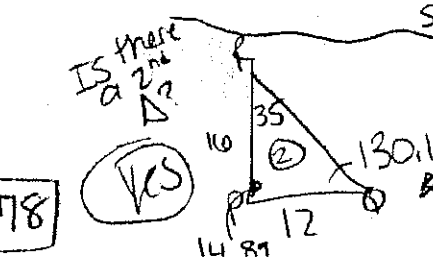
3.  $m\sqrt{2} = 17$
 $\frac{m\sqrt{2}}{\sqrt{2}} = \frac{17\sqrt{2}}{2}$
 $x = \frac{17\sqrt{2}}{2}$

4.  $\frac{10}{12} = \frac{12}{y}$
 $\frac{144}{10} = \frac{10y}{10}$
 $14.40 = y$

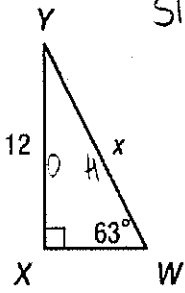
5.  $4^2 + x^2 = 9^2$
 $16 + x^2 = 81$
 $x^2 = 65$
 $x = \sqrt{65}$

6.  $2m = 8\sqrt{3}$
 $m = 4\sqrt{3}$
 $x = 4\sqrt{3} \cdot \sqrt{3}$
 $x = 12$
 $y = 4\sqrt{3}$

7.  $\frac{\sin 86}{x} = \frac{\sin 51}{38}$
 $x = \frac{38(\sin 86)}{\sin(51)}$
 $x = 48.78$

8. **Ambiguous Case** 2' answers
 $\frac{\sin Q}{16} = \frac{\sin(35)}{12}$
 $m\angle Q \approx 49.89^\circ$
 $\frac{x}{\sin 95.11} = \frac{12}{\sin(35)}$
 $x \approx 20.84$
 Is there a 2nd triangle?
 $\frac{x}{\sin(130.11)} = \frac{12}{\sin 35}$
 $x \approx 5.38$

9.

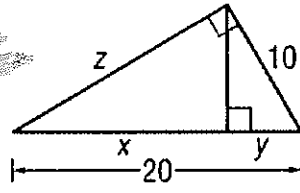


$$\sin 63 = \frac{12}{x}$$

$$x = \frac{12}{\sin 63}$$

$$x = 13.47$$

~~10. 10. 20~~



$$\frac{y}{10} = \frac{10}{20}$$

$$20y = 100$$

$$y = 5$$

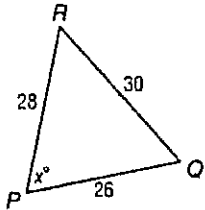
$$20 - 5 = x$$

$$x = 15$$

$$\frac{15}{z} = \frac{z}{20} \quad z^2 = 300$$

$$z = 10\sqrt{3}$$

11.



$$30^2 = 28^2 + 26^2 - 2(28)(26)\cos x$$

$$900 = 1460 - 1456\cos x$$

$$-1460 - 1460$$

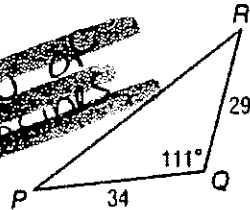
$$\frac{-560}{-1456} = \frac{-1456\cos x}{-1456}$$

$$.3846 = \cos x$$

$$x = \cos^{-1}(.3846)$$

$$x = 67.38^\circ$$

12.

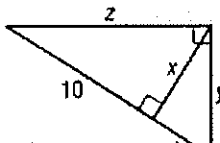


$$x^2 = 34^2 + 29^2 - 2(34)(29)\cos(111)$$

$$x^2 = 2703.70$$

$$x = 52.00$$

13.



$$\frac{10}{x} = \frac{4}{y}$$

$$x^2 = 40$$

$$x = 2\sqrt{10}$$

$$\frac{y}{4} = \frac{y}{14}$$

$$y^2 = 56$$

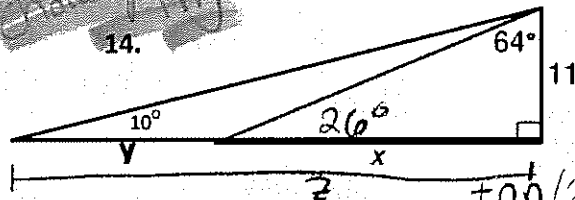
$$y = 2\sqrt{14}$$

$$\frac{10}{z} = \frac{z}{14}$$

$$z^2 = 140$$

$$z = 2\sqrt{35}$$

14.



$$\tan 10 = \frac{11}{z}$$

$$z = \frac{11}{\tan 10}$$

$$z = 62.38$$

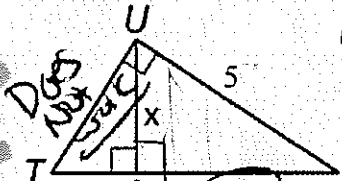
$$\tan(26) = \frac{11}{x}$$

$$x = \frac{11}{\tan 26}$$

$$x = 22.55$$

$$62.38 - 22.55 = 39.83$$

15.



$$\frac{4\sqrt{2}}{5} = \frac{5}{y}$$

$$\frac{4\sqrt{2}}{4\sqrt{2}} y = \frac{25}{4\sqrt{2}}$$

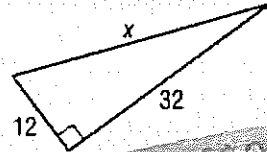
$$y = \frac{25\sqrt{2}}{4\sqrt{2}\sqrt{2}} = \frac{25\sqrt{2}}{8}$$

$$x^2 = \frac{200}{8}$$

$$x^2 = 25$$

$$x = 5$$

16.



$$12^2 + 32^2 = x^2$$

$$144 + 1024 = x^2$$

$$1168 = x^2$$

$$x = 4\sqrt{73}$$