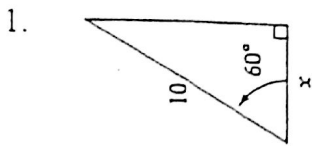
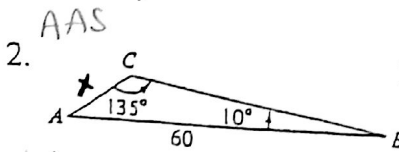


Find the measure of the indicated side or angle of each triangle. Round each answer to the nearest whole unit. (Hint: determine if the triangle is a right triangle or not to know whether to use right triangle trig. Or not)



$x = 5$

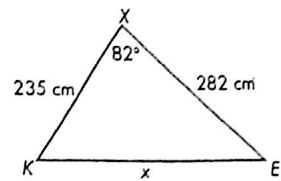


$\frac{\sin 135}{60} = \frac{\sin 10}{x}$

$x = \frac{60 \sin 10}{\sin 135}$

$x = 15$

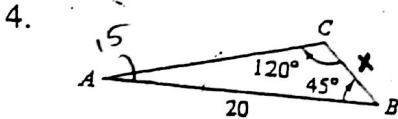
3. SAS



$x^2 = 235^2 + 282^2 - 2(235)(282)\cos 82$

$x = 341$

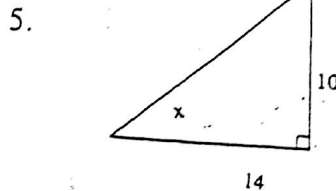
AAS



$\frac{\sin 120}{20} = \frac{\sin 15}{x}$

$x = \frac{20 \sin 15}{\sin 120}$

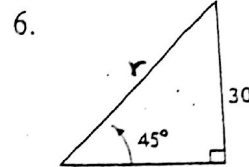
$x = 6$



$\tan X = \frac{10}{14}$

$X = \tan^{-1}\left(\frac{10}{14}\right)$

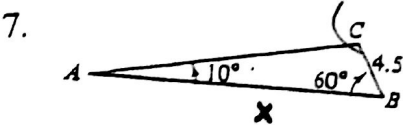
$X = 36^\circ$



$r = 30\sqrt{2}$

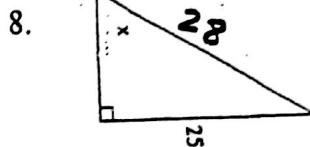
$42$

AAS



$\frac{\sin 10}{4.5} = \frac{\sin 110}{x}$

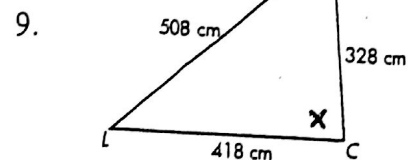
$x = 24$



$\sin X = \frac{25}{28}$

$X = \sin^{-1}\left(\frac{25}{28}\right) = 63$

SSS



$508^2 = 418^2 + 328^2 - 2(418)(328)\cos X$

$\frac{-24244}{-274208} = \cos X$

$X = 85$

Find the Area of each of the given triangles. Round your answers to the nearest whole unit.

10.  $a = 16, b = 20, C = 84^\circ$

$A = \frac{16 \cdot 20 \cdot \sin 84}{2}$

$A = 159$

11.  $b = 4.5, c = 22, A = 5^\circ$

$\frac{(4.5)(22)\sin 5}{2}$

$4$

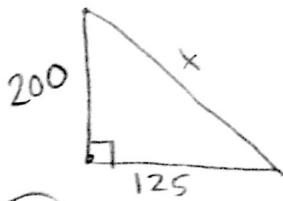
12.  $a = 62, c = 20, B = 130^\circ$

$\frac{(62)(20)(\sin 130)}{2}$

$475$

Solve each of the following. If a picture is not given draw one to help you. Round all answers to the nearest whole unit.

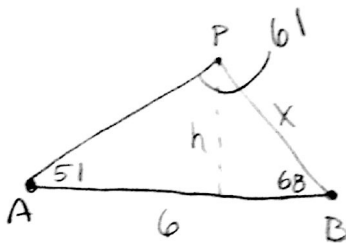
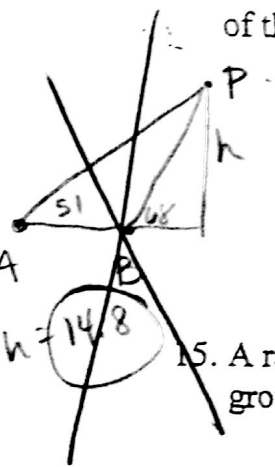
13. A guy wire is stretched from a broadcasting tower at a point 200 feet above the ground to an anchor 125 feet from the base. How long is the wire?



$$200^2 + 125^2 = x^2$$

$$x = 236 \text{ ft.}$$

14. The angle of elevation to an airplane from 2 points (A and B) on the ground are 51 and 68 degrees respectively. If point A and B are 6 miles apart, what is the altitude of the airplane?



$$\frac{\sin 51}{x} = \frac{\sin 61}{6}$$

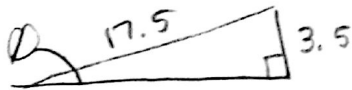
$$x = 5.33$$

$$\sin 68 = \frac{h}{5.33}$$

$$h = 5.33 \sin 68$$

$$h = 5 \text{ miles}$$

15. A ramp 17.5 feet in length rises to a loading platform that is 3.5 feet off the ground. Find the angle that the ramp makes with the ground.

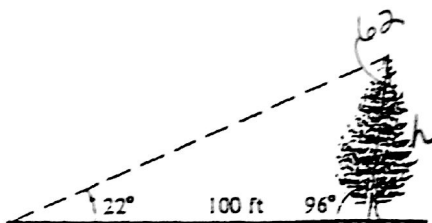


$$\sin \theta = \frac{3.5}{17.5}$$

$$\theta = \sin^{-1}\left(\frac{3.5}{17.5}\right) = 12^\circ$$

16. Because of prevailing winds, a tree grew so that it was leaning 6 degrees from the vertical. Find the length of the tree if the angle of elevation to the top of the tree is 22 degrees when one is 100 feet from the base of the tree. See the diagram.

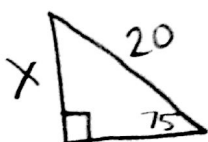
ASA



$$\frac{\sin 62}{100} = \frac{\sin 22}{h}$$

$$h = 42 \text{ ft}$$

17. A 20 foot ladder leaning against the side of a house makes a 75 degree angle with the ground. How far up the side of the house does it reach?



$$\sin 75 = \frac{x}{20}$$

$$x = 20 \sin 75 = 19 \text{ ft}$$