

I. Complete the chart below about each given right triangle. Keeps answers completely simplified!

Given Right Triangle	Work to Find Missing Side	THREE trig ratios for angle θ
1.)	$X^2 + 20^2 = 25^2$ $X^2 = 225$ $X = 15$	$\sin \theta = \frac{20}{25} = \frac{4}{5}$ $\cos \theta = \frac{15}{25} = \frac{3}{5}$ $\tan \theta = \frac{20}{15} = \frac{4}{3}$
2.)	$X^2 + 9^2 = 16^2$ $X^2 = 175$ $X = 5\sqrt{7}$	$\sin \theta = \frac{16}{17}$ $\cos \theta = \frac{9}{17}$ $\tan \theta = \frac{16}{9}$
3.)	$(15)^2 + 20^2 = X^2$ $405 = X^2$ $X = 9\sqrt{5}$	$\sin \theta = \frac{20}{25} = \frac{4}{5}$ $\cos \theta = \frac{15}{25} = \frac{3}{5}$ $\tan \theta = \frac{20}{15} = \frac{4}{3}$
4.)	$X^2 + 14^2 = (15)^2$ $X^2 = 49$ $X = 7$	$\sin \theta = \frac{14}{15}$ $\cos \theta = \frac{7}{15}$ $\tan \theta = \frac{14}{7} = 2$
5.)	$2^2 + (4\sqrt{2})^2 = X^2$ $X^2 = 36$ $X = 6$	$\sin \theta = \frac{4\sqrt{2}}{6} = \frac{2\sqrt{2}}{3}$ $\cos \theta = \frac{2}{6} = \frac{1}{3}$ $\tan \theta = \frac{4\sqrt{2}}{2} = 2\sqrt{2}$
6.)	$X^2 + (2\sqrt{5})^2 = (2\sqrt{5})^2$ $X^2 = 100$ $X = 10$	$\sin \theta = \frac{2\sqrt{5}}{2\sqrt{5}} = 1$ $\cos \theta = \frac{10}{2\sqrt{5}} = \frac{5\sqrt{5}}{5}$ $\tan \theta = \frac{2\sqrt{5}}{10} = \frac{\sqrt{5}}{5}$
7.)	$X^2 + 6^2 = (3\sqrt{6})^2$ $X^2 = 18$ $X = 3\sqrt{2}$	$\sin \theta = \frac{3\sqrt{3}}{3\sqrt{6}} = \frac{\sqrt{2}}{2}$ $\cos \theta = \frac{6}{3\sqrt{6}} = \frac{\sqrt{6}}{3}$ $\tan \theta = \frac{3\sqrt{3}}{6} = \frac{\sqrt{3}}{2}$

II. Complete the chart below each given ratio. Make sure to label angle θ on the given triangle.

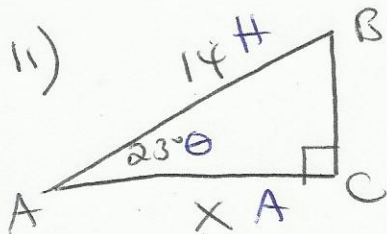
Given Trig Ratio	Label Δ and Work for Missing Side	Other TWO triangle ratios for angle θ
8.) $\sin \theta = \frac{5}{13}$		$\cos \theta = \frac{12}{13}$ $\tan \theta = \frac{5}{12}$
9.) $\cos \theta = \frac{\sqrt{17}}{9}$		$\sin \theta = \frac{8}{9}$ $\tan \theta = \frac{8}{\sqrt{17}}$
10.) $\tan \theta = \frac{4\sqrt{2}}{7}$		$\sin \theta = \frac{4\sqrt{2}}{9}$ $\cos \theta = \frac{7}{9}$

III. For the following: a.) Find the value of "x", if there is NO "x" then SOLVE triangle ABC.
b.) You MUST SHOW the "set-up" and work for each problem for credit!
c.) Remember - Round to the TENTH place (NO RADICALS!)

11.)	12.)	13.)	14.)
15.) $A = 64^\circ$ $a = 4.5$ $b = 2.2$	16.) $B = 34.3^\circ$ $a = 13.4$ $c = 16.3$	17.) $A = 48^\circ$ $a = 16$ $b = 10.7$	18.) $B = 28^\circ$ $b = 21.7$ $c = 24.1$
19.)	20.)		

For problem # 11-20 -> MUST SHOW work for CREDIT!

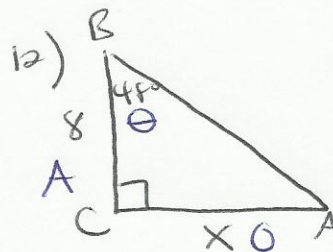
Adv Functions - Trig Ratio WJ



$$\cos 23 = \frac{X}{14}$$

$$X = 14 \cos 23$$

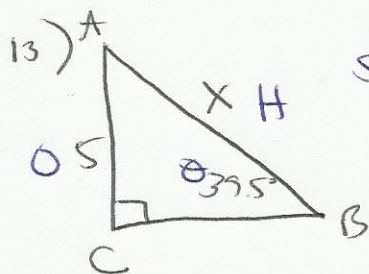
$$\boxed{X = 12.9}$$



$$\tan 48 = \frac{X}{8}$$

$$X = 8 \tan 48$$

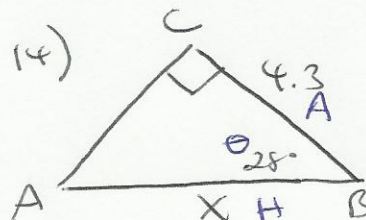
$$\boxed{X = 8.9}$$



$$\sin 39.5 = \frac{5}{X}$$

$$X = \frac{5}{\sin 39.5}$$

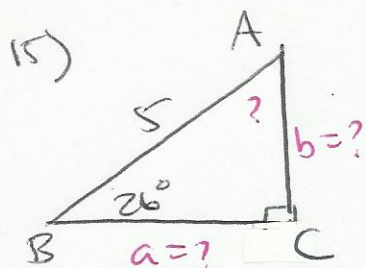
$$\boxed{X = 7.9}$$



$$\cos 28 = \frac{4.3}{X}$$

$$X = \frac{4.3}{\cos 28}$$

$$\boxed{X = 4.9}$$



$$A = 90 - 26$$

$$\boxed{A = 64}$$

$$\cos 26 = \frac{a}{5}$$

$$a = 5 \cos 26$$

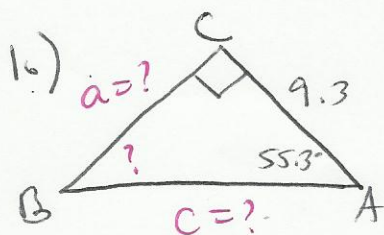
$$\boxed{a = 4.5}$$

$$4.5^2 + b^2 = 5^2$$

$$-4.5^2 \quad -4.5^2$$

$$b^2 = 4.5$$

$$\boxed{b = 2.2}$$



$$B = 90 - 55.3$$

$$\boxed{B = 34.7}$$

$$\tan 55.3 = \frac{a}{9.3}$$

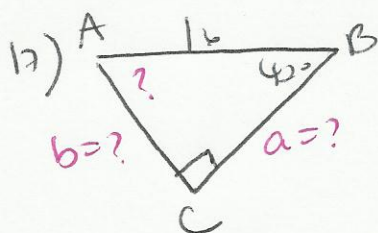
$$a = 9.3 \tan 55.3$$

$$\boxed{a = 13.4}$$

$$13.4^2 + 9.3^2 = c^2$$

$$266.05 = c^2$$

$$\boxed{c = 16.3}$$



$$A = 90 - 42$$

$$\boxed{A = 48}$$

$$\cos 42 = \frac{a}{16}$$

$$a = 16 \cos 42$$

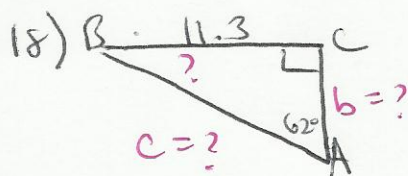
$$\boxed{a = 11.9}$$

$$11.9^2 + b^2 = 16^2$$

$$-11.9^2 \quad -11.9^2$$

$$b^2 = 114.79$$

$$\boxed{b = 10.7}$$



$$B = 90 - 62$$

$$\boxed{B = 28}$$

$$\tan 62 = \frac{b}{11.3}$$

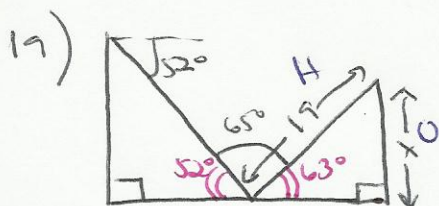
$$b = 11.3 \tan 62$$

$$\boxed{b = 21.3}$$

$$11.3^2 + 21.3^2 = c^2$$

$$c^2 = 581.38$$

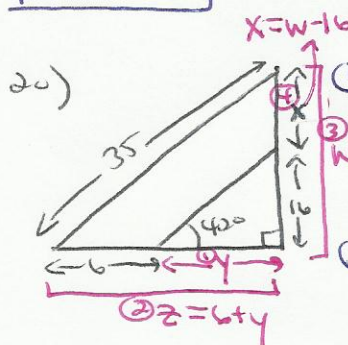
$$\boxed{c = 24.1}$$



$$\sin 63 = \frac{X}{19}$$

$$X = 19 \sin 63$$

$$\boxed{X = 16.9}$$



$$\tan 42 = \frac{16}{y}$$

$$y = \frac{16}{\tan 42}$$

$$y = 17.8$$

$$23.8^2 + w^2 = 35^2$$

$$w^2 = 658.84$$

$$w = 25.7$$

$$X = 25.7 + 16$$

$$\boxed{X = 41.7}$$