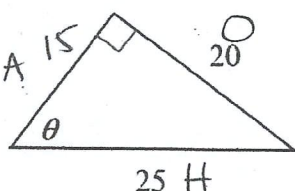
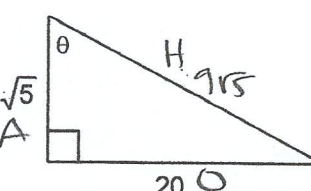
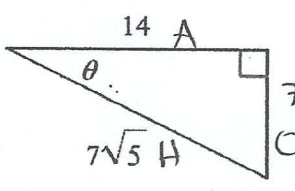
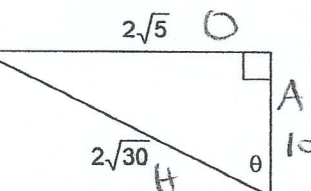
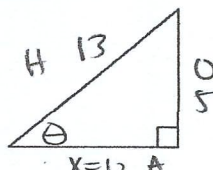
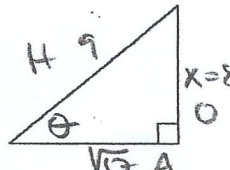
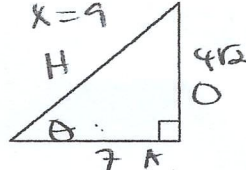


I. Complete the chart below about each given right triangle. Keeps answers completely simplified!

Given Right Triangle	Work to Find Missing Side	THREE trig ratios for angle θ
1.) 	$X^2 + 20^2 = 25^2$ $X^2 = 225$ $X = 15$	$\sin \theta = \frac{20}{25} = \left(\frac{4}{5}\right)$ $\cos \theta = \frac{15}{25} = \left(\frac{3}{5}\right)$ $\tan \theta = \frac{20}{15} = \left(\frac{4}{3}\right)$
2.) 	$20^2 + (\sqrt{5})^2 = X^2$ $405 = X^2$ $X = 9\sqrt{5}$	$\sin \theta = \frac{20}{9\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{20\sqrt{5}}{45} = \left(\frac{4\sqrt{5}}{9}\right)$ $\cos \theta = \frac{\sqrt{5}}{9\sqrt{5}} = \left(\frac{1}{9}\right)$ $\tan \theta = \frac{20}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{20\sqrt{5}}{5} = (4\sqrt{5})$
3.) 	$X^2 + 14^2 = (7\sqrt{5})^2$ $X^2 = 49$ $X = 7$	$\sin \theta = \frac{7}{7\sqrt{5}} = \frac{1}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \left(\frac{\sqrt{5}}{5}\right)$ $\cos \theta = \frac{14}{7\sqrt{5}} = \frac{2}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \left(\frac{2\sqrt{5}}{5}\right)$ $\tan \theta = \frac{7}{14} = \left(\frac{1}{2}\right)$
4.) 	$(2\sqrt{5})^2 + X^2 = (2\sqrt{30})^2$ $X^2 = 100$ $X = 10$	$\sin \theta = \frac{2\sqrt{5}}{2\sqrt{30}} = \frac{1}{\sqrt{6}} \cdot \frac{\sqrt{6}}{\sqrt{6}} = \left(\frac{\sqrt{6}}{6}\right)$ $\cos \theta = \frac{10}{2\sqrt{30}} \cdot \frac{\sqrt{30}}{\sqrt{30}} = \frac{10\sqrt{30}}{60} = \left(\frac{\sqrt{30}}{6}\right)$ $\tan \theta = \frac{2\sqrt{5}}{10} = \left(\frac{\sqrt{5}}{5}\right)$

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
5.) $\sin \theta = \frac{5}{13} \quad \frac{O}{H}$	 $X^2 + 5^2 = 13^2$ $X^2 = 144$ $X = 12$	$\cos \theta = \left(\frac{12}{13}\right)$ $\tan \theta = \left(\frac{5}{12}\right)$
6.) $\cos \theta = \frac{\sqrt{17}}{9} \quad \frac{A}{H}$	 $(\sqrt{17})^2 + X^2 = 9^2$ $X^2 = 64$ $X = 8$	$\sin \theta = \left(\frac{8}{9}\right)$ $\tan \theta = \frac{8}{\sqrt{17}} \cdot \frac{\sqrt{17}}{\sqrt{17}} = \left(\frac{8\sqrt{17}}{17}\right)$
7.) $\tan \theta = \frac{4\sqrt{2}}{7} \quad \frac{O}{A}$	 $(4\sqrt{2})^2 + (7)^2 = X^2$ $X^2 = 81$ $X = 9$	$\sin \theta = \left(\frac{4\sqrt{2}}{9}\right)$ $\cos \theta = \left(\frac{7}{9}\right)$

III. Find the length of missing side x. Must show work!

<p>8.)</p> <p> $\cos 23 = \frac{x}{14}$ $x = 14 \cos 23$ $x = 12.9$ </p>	<p>9.)</p> <p> $\tan 48 = \frac{x}{8}$ $x = 8 \tan 48$ $x = 8.9$ </p>	<p>10.)</p> <p> $\sin 39.5 = \frac{5}{x}$ $x = \frac{5}{\sin 39.5}$ $x = 7.9$ </p>	<p>11.)</p> <p> $\cos 28 = \frac{4.3}{x}$ $x = \frac{4.3}{\cos 28}$ $x = 4.9$ </p>
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IV. Solve each triangle below. Must show work!

<p>12.)</p> <p> $\textcircled{1} A = 90 - 26$ $A = 64^\circ$ $\textcircled{2} \cos 26 = \frac{a}{5} \rightarrow a = 5 \cos 26$ $a = 4.5$ $\textcircled{3} 4.5^2 + b^2 = 5^2$ $b = 2.2$ </p>	<p>13.)</p> <p> $\textcircled{1} B = 90 - 55.3$ $B = 34.7^\circ$ $\textcircled{2} \tan 55.3 = \frac{9.3}{a}$ $a = \frac{9.3}{\tan 55.3}$ $a = 13.4$ $\textcircled{3} 13.4^2 + 9.3^2 = c^2$ $c = 16.3$ </p>	<p>14.)</p> <p> $\textcircled{1} A = 90 - 42$ $A = 48^\circ$ $\textcircled{2} \cos 42 = \frac{a}{16}$ $a = 16 \cos 42$ $a = 11.9$ $\textcircled{3} 11.9^2 + b^2 = 16^2$ $b = 10.7$ </p>	<p>15.)</p> <p> $\textcircled{1} B = 90 - 62$ $B = 28^\circ$ $\textcircled{2} \tan 62 = \frac{11.3}{b}$ $b = \frac{11.3}{\tan 62}$ $b = 6$ $\textcircled{3} 11.3^2 + 6^2 = c^2$ $c = 12.8$ </p>
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V. Determine the value of side x. Must show work!

<p>16.)</p> <p> $\textcircled{1} A = 52^\circ$ (b/c Alt Int Angs) $\textcircled{2} B = 180 - 65 - 52$ $B = 63^\circ$ $\textcircled{3} \sin 63 = \frac{x}{19}$ $x = 19 \sin 63$ $x = 16.9$ </p>	<p>17.)</p> <p> $\textcircled{1} \sin 34 = \frac{b}{18} \rightarrow b = 18 \sin 34$ $b = 10.1$ $\textcircled{2} 10.1^2 + b^2 = 18^2 \rightarrow b = 14.9$ $\textcircled{3} \tan 46 = \frac{14.9}{c} \rightarrow c = \frac{14.9}{\tan 46}$ $c = 14.4$ $\textcircled{4} x = 10.1 + 14.4$ $x = 24.5$ </p>	<p>18.)</p> <p> $\textcircled{1} \tan 42 = \frac{16}{y} \rightarrow y = \frac{16}{\tan 42}$ $y = 17.8$ $\textcircled{2} w = 6 + 17.8 \rightarrow w = 23.8$ $\textcircled{3} 23.8^2 + z^2 = 35^2 \rightarrow z = 25.7$ $\textcircled{4} x = 25.7 - 16$ $x = 9.7$ </p>
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