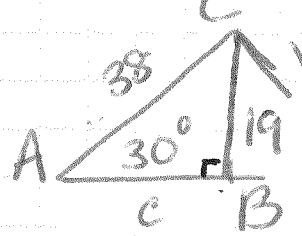
298 15, 16, 21, 27-29, 31, 45, 46

15. $a=19$ $b=38$ $A=30°$



$19<38$

$h = 38\sin 30° = 19$ $19=h$ 1 Δ

$38^2 = 19^2 + c^2$ $c^2 = 1083$ $\boxed{c = 32.9}$

$\boxed{B = 90° \quad C = 60°}$

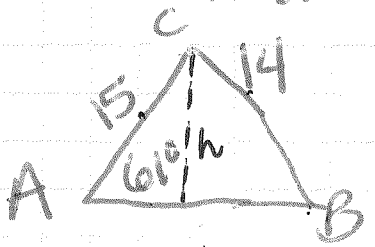
16. $a=5$ $b=6$ $A=63°$

$5<6$ $5<5.346$

$6\sin 63 = h = 5.346$

no solution

21. $A=61°$ $a=14$ $b=15$



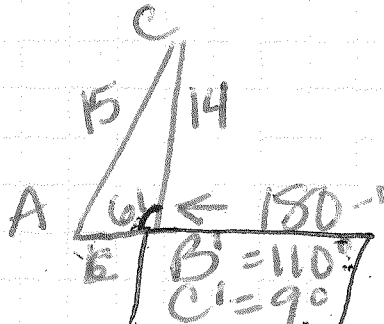
$14<15$ $13.12<14$ 2 Δ's

$h = 15\sin 61 = 13.12$

$\frac{\sin B}{15} = \frac{\sin 61}{14}$ $\sin B = \frac{15\sin 61}{14}$ $\boxed{\sin^{-1}\left(\frac{15\sin 61}{14}\right) = B}$

$\boxed{B = 70°}$ $C = 180 - (70+61) = \boxed{49° = C}$

$\frac{c}{\sin 49°} = \frac{14}{\sin A}$ $c = \frac{14\sin 49}{\sin 61} = \boxed{12.08 = c}$



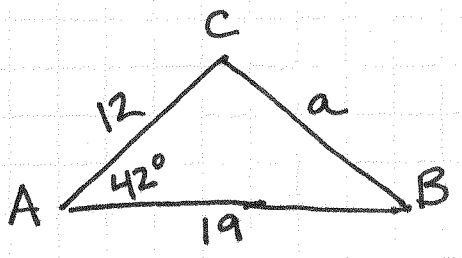
$180 - 70°$

$\boxed{B = 110° \quad C' = 9°}$

$\frac{c'}{\sin 9} = \frac{14}{\sin 61}$

$c' = \frac{14\sin 9}{\sin 61} = \boxed{c' = 2.504}$

27. $\triangle ABC$ $A=42°$ $b=12$ $c=19$



$a^2 = b^2 + c^2 - 2bc\cos A$

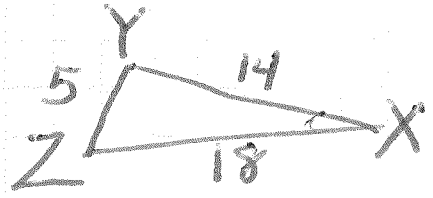
$a^2 = 12^2 + 19^2 - 2(12)(19)\cos 42°$

$a^2 = 166.126$ $\boxed{a = 12.889}$

$\frac{\sin B}{12} = \frac{\sin 42°}{12.889}$ $\boxed{\sin^{-1}\left(\frac{12\sin 42°}{12.889}\right) = B = 38.554°}$

$C = 180 - (42 + 38.554)$ $\boxed{C = 99.466°}$

28. $\triangle XYZ$ $x=5$ $y=18$ $z=14$



$5^2 = 14^2 + 18^2 - 2(14)(18)\cos X$

$25 = 520 - 504\cos X$

$\frac{-495}{-504} = \frac{-504\cos X}{-504}$

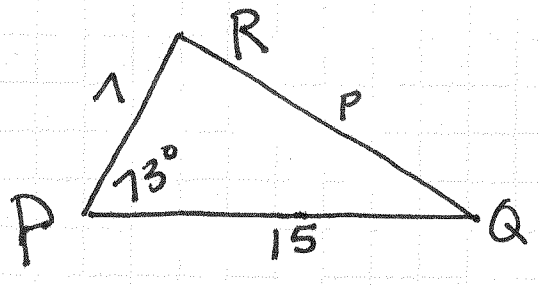
$\boxed{\cos^{-1}\left(\frac{-495}{504}\right) = X = 10.844°}$

$\frac{\sin Z}{14} = \frac{\sin X}{5}$

$\boxed{\sin^{-1}\left(\frac{14\sin 10.844}{5}\right) = Z = 31.788°}$

$Y = 180 - (31.788 + 10.844)$ $\boxed{Y = 137.368°}$

29. $\triangle PQR$ $P = 73°$ $q = 7$ $r = 15$



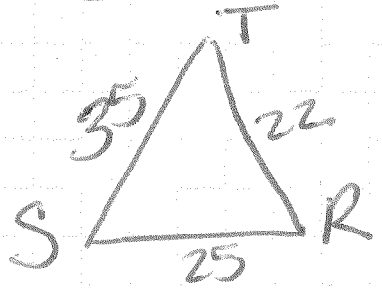
$p^2 = 7^2 + 15^2 - 2(7)(15)\cos 73°$

$p^2 = 212.602$ $\boxed{p = 14.581}$

$\frac{\sin Q}{7} = \frac{\sin 73}{14.581}$ $\boxed{\sin^{-1}\left(\frac{7\sin 73°}{14.581}\right) = Q = 27.33°}$

$R = 180 - (27.33 + 73) =$ $R = 79.67°$

31. $\triangle RST$ $r = 35$ $s = 22$ $t = 25$



$35^2 = 22^2 + 25^2 - 2(22)(25)\cos R$

$1225 = 1109 - 1100\cos R$

$\frac{116}{-1100} = \frac{-1100\cos R}{-1100}$

$\boxed{\cos^{-1}\left(-\frac{116}{1100}\right) = R = 96.053°}$

$\frac{\sin S}{22} = \frac{\sin 96.053}{35}$

$\boxed{\sin^{-1}\left(\frac{22\sin 96.053}{35}\right) = S}$

$\boxed{S = 38.681°}$

$\boxed{T = 45.26°}$

$180 - 134.74$

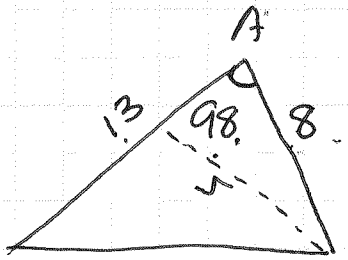
$22^2 = 35^2 + 25^2 - 2(35)(25)\cos S$

45. $\triangle ABC$ $A = 98°$ $b = 13\,mm$ $c = 8\,mm$

$$\text{Area} = \frac{1}{2}bc\sin 98°$$

$$= \frac{1}{2}(13)(8)\sin 98°$$

$$\boxed{\text{Area} = 51.494\ mm^2}$$



46. $\triangle JKL$ $L = 67°$ $j = 11\,yd$ $k = 24\,yd$

$$\text{Area} = \frac{1}{2}(11)(24)\sin 67°$$

$$\boxed{\text{Area} = 121.507\ yd^2}$$