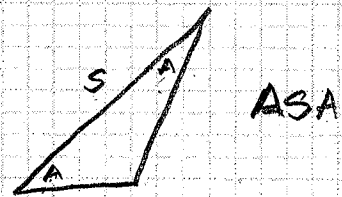
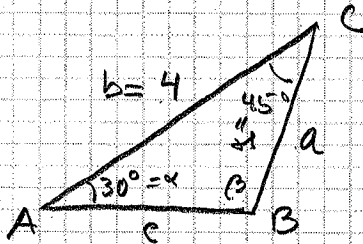
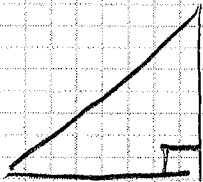
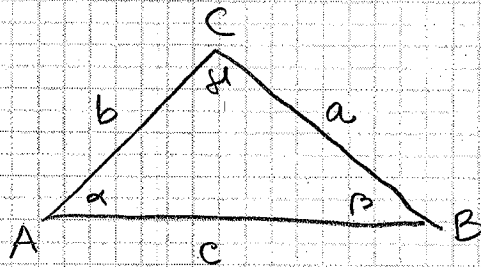


THE LAW OF SINES

$$\frac{\sin \alpha}{a} = \frac{\sin \beta}{b} = \frac{\sin \gamma}{c}$$

or $\frac{a}{\sin \alpha} = \frac{b}{\sin \beta} = \frac{c}{\sin \gamma}$



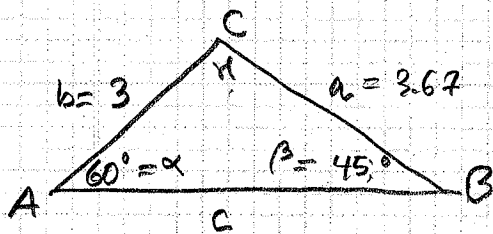
$$\frac{\sin 30^\circ}{a} = \frac{\sin 45^\circ}{c}$$

$$30^\circ + 45^\circ + \beta = 180^\circ \Rightarrow \beta = 180^\circ - 30^\circ - 45^\circ = 105^\circ$$

$$\frac{\sin 105^\circ}{4} = \frac{\sin 45^\circ}{c} \Rightarrow c = \frac{(\sin 45^\circ) \times 4}{\sin 105^\circ} \approx 2.93$$

$$\frac{\sin 30^\circ}{a} = \frac{\sin 45^\circ}{2.93} \Rightarrow a = \frac{(\sin 30^\circ) \times (2.93)}{\sin 45^\circ} = 2.07$$

Ex:



$$60^\circ + 45^\circ + \gamma = 180^\circ \Rightarrow \gamma = 180 - 60 - 45 = 75^\circ$$

$$\frac{\sin 60^\circ}{a} = \frac{\sin 45^\circ}{3} \Rightarrow a = \frac{(\sin 60^\circ) \times 3}{\sin 45^\circ} = \boxed{a \approx 3.67}$$

$$\frac{\sin 75^\circ}{c} = \frac{\sin 45^\circ}{3} \Rightarrow c = \frac{(\sin 75^\circ) \times 3}{\sin 45^\circ} = c \approx 4.1$$

