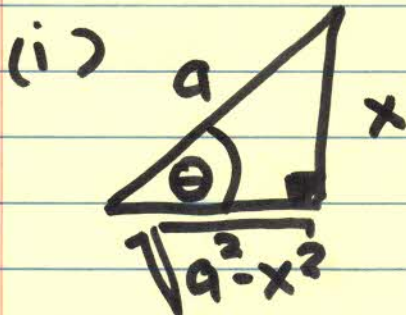


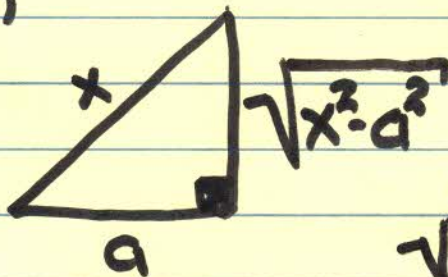
## MAGIC TRIANGLES

To handle  $\sqrt{a^2-x^2}$ ,  $\sqrt{x^2-a^2}$ , and  $\sqrt{x^2+a^2} = \sqrt{a^2+x^2}$  in integrals



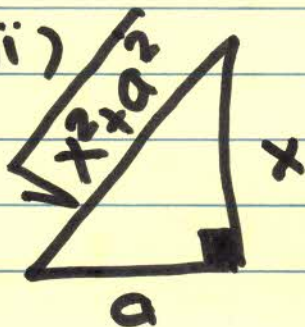
$$\begin{aligned} \text{Use } x &= a \sin \theta \\ dx &= a \cos \theta d\theta \\ \sqrt{a^2-x^2} &= a \cos \theta \end{aligned}$$

(ii)



$$\begin{aligned} \text{Use } x &= a \sec \theta \\ dx &= a \sec \theta \tan \theta d\theta \\ \sqrt{x^2-a^2} &= a \tan \theta \end{aligned}$$

(iii)



$$\begin{aligned} \text{Use } x &= a \tan \theta \\ dx &= a \sec^2 \theta d\theta \\ \sqrt{x^2+a^2} &= a \sec \theta \end{aligned}$$