Total Acceleration

$\vec{a}_t = R\alpha$, in the direction tangent the circle

Important: If we assume R and α are constant, $|\vec{a}_t|$ will be constant.

There's also $\vec{a}_c$ that always points to the center

$\vec{a}_{c=}\dfrac{v^2}{R} = R\omega^2\,(-\hat{r})$

$\hat{r}$ means towards the center of the circle

$\vec{a}_c$ and $\vec{a}_t$ combine to get $\vec{a}_{\text{tot}}$

By definition, $\vec{a}_c$ is always tangential to $\vec{a}_t$

$a_{\text{tot}} = \sqrt{{a_c}^2 + {a_t}^2}$

$\tan\theta = \dfrac{a_c}{a_t}$