

$$5. \vec{r}(t) = 5t\vec{i} + 3t\vec{j}, t=1$$

$$\vec{r}'(t) = 5\vec{i} + 3\vec{j} \Rightarrow \vec{r}'(1) = 5\vec{i} + 3\vec{j} \quad \|\vec{r}'(1)\| = \sqrt{34}$$

$$\|\vec{r}'(t)\| = \sqrt{5^2 + 3^2} = \sqrt{25+9} = \sqrt{34}$$

$$\vec{T}(t) = \frac{\vec{r}'(t)}{\|\vec{r}'(t)\|} = \frac{5\vec{i} + 3\vec{j}}{\sqrt{34}}$$

$$\vec{T}'(t) = \vec{0}$$

$$\vec{T}'(1) = \vec{0}$$

$$\|\vec{T}'(1)\| = \sqrt{0^2 + 0^2} = 0$$

$$K = \frac{\|\vec{T}'(1)\|}{\|\vec{r}'(1)\|} = \frac{0}{\sqrt{34}} = \textcircled{0}$$

$$\begin{aligned} X &= 5t & y &= 3t \\ \frac{X}{5} &= t & & \rightarrow y = 3\left(\frac{X}{5}\right) \\ & & & \boxed{y = \frac{3}{5}X} \\ & & & \text{LINE} \end{aligned}$$