$$\mathbf{r}(t) = t\,\mathbf{i} + 7t\,\mathbf{j} + (5 + t^2)\,\mathbf{k} \quad \Rightarrow \quad \mathbf{r}'(t) = \mathbf{i} + 7\mathbf{j} + 2t\,\mathbf{k}, \quad \mathbf{r}''(t) = 2\,\mathbf{k},$$

$$|\mathbf{r}'(t)| = \sqrt{1^2 + 7^2 + (2t)^2} = \sqrt{4t^2 + 50}, \quad \mathbf{r}'(t) \times \mathbf{r}''(t) = 14\,\mathbf{i} - 2\,\mathbf{j},$$

$$|\mathbf{r}'(t) \times \mathbf{r}''(t)| = \sqrt{2^2 + 14^2 + 0^2} = \sqrt{200} = 2\sqrt{50}.$$

$$\text{Then} \quad \kappa(t) = \frac{|\mathbf{r}'(t) \times \mathbf{r}''(t)|}{|\mathbf{r}'(t)|^3} = \frac{2\sqrt{50}}{\left(\sqrt{4t^2 + 50}\right)^3} = \frac{2\sqrt{2}\sqrt{25}}{\left(\sqrt{2}\sqrt{2t^2 + 25}\right)^3}$$

$$= \frac{\sqrt{25}}{(2t^2 + 25)^{3/2}}.$$