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$$\textcircled{1} \quad x = 8t^3 \quad y = 4t^3 - 7t \quad z = t + 3$$

$$\textcircled{i} \quad \text{Velocity} = \frac{dr}{dt}$$

$$r = xi + yj + zk$$

$$r = 8t^3i + (4t^3 - 7t)j + (t + 3)k$$

$$\frac{dr}{dt} = 24t^2i + (12t^2 - 7)j + k$$

$$\textcircled{ii} \quad \text{Acceleration} = \frac{d^2r}{dt^2} = 48ti + 24tj$$

$$\textcircled{2} \quad T = \frac{dr/dt}{|dr/dt|}$$

$$r = 3ti + t^3j + t^2k$$

$$\frac{dr}{dt} = 3i + 3t^2j + 2tk$$

$$|dr/dt| = \sqrt{(3)^2 + (3)^2 + (2)^2}$$
$$= \sqrt{9 + 9 + 4}$$

$$|dr/dt| = \sqrt{22}$$

$$T = \frac{3i + 3j + 2k}{\sqrt{22}}$$