Show all work, including mental steps, in a clearly organized way that speaks for itself. Use proper mathematical notation, identifying expressions by their proper symbols (introducing them if necessary), and use arrows and equal signs when appropriate. Always simplify expressions. BOX final short answers. LABEL parts of problem. Keep answers EXACT (but give decimal approximations for interpretation). Indicate where technology is used and what type (Maple, GC).

Given the "3-4-5 triangle" inclined helix $\mathbf{r}(t) = \langle 3 \cdot \cos(t), 3 \cdot \sin(t), 4 \cdot t \rangle$,
a) Evaluate the curvature $\kappa(t) = \frac{|\mathbf{r}'(0) \times \mathbf{r}''(0)|}{|\mathbf{r}'(0)|^3}$ and the radius of curvature $\rho(t) = \frac{1}{\kappa(t)}$.
b) Evaluate the unit tangent $\mathbf{T}(t) = \frac{\mathbf{r}'(t)}{|\mathbf{r}'(t)|}$ and the initial unit normal $\mathbf{N}(0) = \mathbf{T}'(0) / |\mathbf{T}'(0)|$.
c) The position vector $\mathbf{C}(t)$ of the center of the osculating circle is a displacement $\rho(t) \mathbf{N}(t)$ from the tip of the position vector $\mathbf{r}(t)$, namely $\mathbf{C}(t) = \mathbf{r}(t) + \rho(t) \mathbf{N}(t)$. Evaluate $\mathbf{C}(0)$. 