

Exercises

1. If the position vector $\vec{r}(t)$ of a moving particle equals $\langle 4\cos(t), 3\sin(t) \rangle$, find the velocity when $t = \pi/3$.
2. If $x^2 + xy + y^2 = 3$, find the value of the second derivative y'' at the point on the graph where $x = 1$ and $y = 1$.
3. If $f(1) = 2$, $f(2) = 3$, $f'(1) = 4$, $f'(2) = 5$, $f'(3) = 6$, and $F(x) = f(x f(x f(x)))$, find $F'(1)$.