

Free Response Problem Using Derivatives

Consider the differential equation $\frac{dy}{dx} = \frac{3-x}{y}$. Let $y = f(x)$ be a particular solution to the given differential equation for $1 < x < 5$ such that the line $y = -2$ is tangent to the graph of f . Find the x coordinate of the point of tangency and determine whether f has a local maximum, local minimum, or neither at this point.

What information are you given?

What information can you find?

How will you answer the question?