

1.3 Direction Fields

Suggested homework:

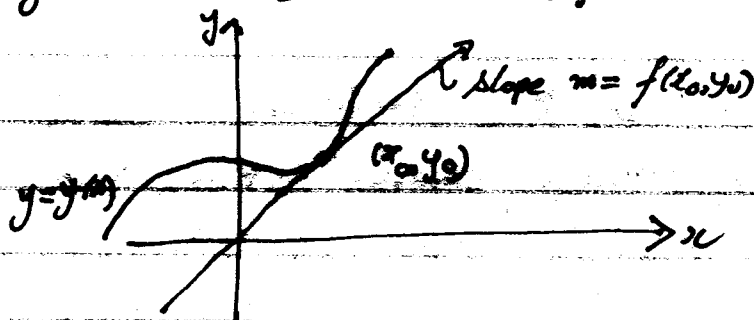
1, 3, 10, 11, 12, 13, 14, 15, 16.

Consider the DE

$$\frac{dy}{dx} = f(x, y)$$

Suppose $y = y(x)$ is a solution that satisfies $y(x_0) = y_0$.
i.e., the solution curve passes thru (x_0, y_0) .

Then $y'(x_0) = f(x_0, y_0) = m$ = slope of
the tangent to the soln curve at (x_0, y_0) .



The direction field of the DE

$$\frac{dy}{dx} = f(x, y)$$

is a plot of short line segments at points (x, y)
with slope $f(x, y)$.