AUTHOR 1 ————————————— ☐

AUTHOR 2 ————————————— ☐

AUTHOR 3 ————————————— ☐

AUTHOR 4 ————————————— ☐
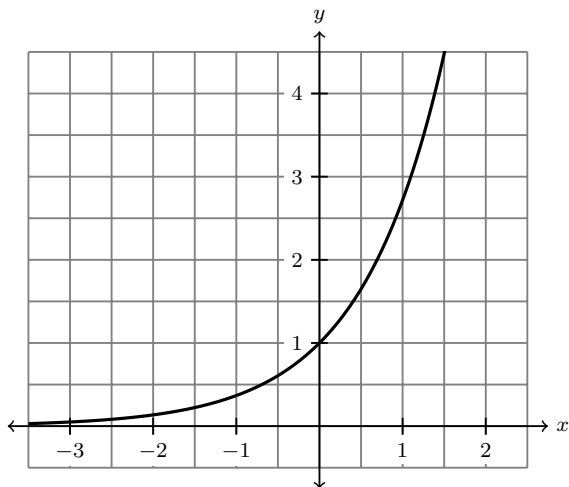
Worksheet 07

1. Calculate $\dfrac{dy}{dx}$ for each of the following. (Remember: $\dfrac{dy}{dx}$ stands for "the derivative of y with respect to x".)

(a) $y = 7 + 0.5x^2 - \dfrac{3}{x^2} + \pi^3$

(b) $y = \left(x + x^{-1}\right)\left(1 + 7x - x^2\right)$

(c) $y = \dfrac{x^5 - \sqrt{x}}{3x^2}$

2. The graph of $f(x) = e^x$ is below.

(a) What is the *geometric* meaning of $f'(0)$?

(b) Use the graph of $f(x)$ to find $f'(0)$.

3. Find an equation for the tangent line to the graph of $f(x) = e^x - \sqrt{x} + 1$ where $x = 1$.

4. Find all points where the graph of $y = \dfrac{1}{x^2} + 16x^2$ has a horizontal tangent line.