| Author 1 | Day 20<br>Day 10 |
|----------|------------------|
| Author 2 |                  |
| Author 3 |                  |
| Author 4 |                  |

## Group Work 07

Calculate dy/dx for each of the following. (Remember: dy/dx stands for "the derivative of y with respect to x".)
(a) y = 7 + 0.5x<sup>2</sup> - 3/x<sup>2</sup> + π<sup>3</sup>

**(b)** 
$$y = (x + x^{-1}) (1 + 7x - x^2)$$

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

**2.** The graph of  $y = e^x$  is below.



(a) What is the geometric meaning of 
$$\frac{d}{dx} [e^x]_{x=0}$$

(**b**) Use the graph of 
$$y = e^x$$
 to find  $\frac{d}{dx} \left[ e^x \right]_{x=0}$ .

**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  $y = \frac{1}{x^2} + 16x^2$  has a horizontal tangent line.