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11.4 Quiz: Derivatives

Use your own notebook, but no calculators or computers

State the derivative of a polynomial function

1. $f(x) = x^3 + 4x^2$

2. $f(x) = x^5 - 3x^4 + 2x^2$

Evaluate a function and its derivative at a given point

3. Given $f(x) = 2x^3 - 5x^2$
   (a) Find $f(1)$

   (b) Find $f'(1)$

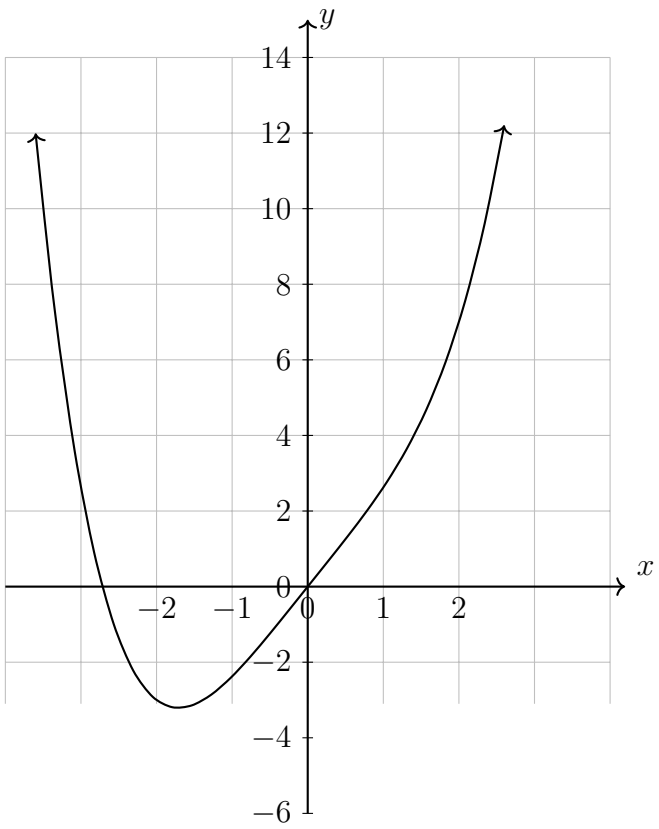
4. The graph shows the exponential function $f(t) = 1200 \times (1 + 0.18)^t$ representing 18% annual growth rate over t years.

(a) Write down the initial deposit in the account.

(b) What is the annual interest rate?

(c) Approximately how much will the account hold at the end of ten years?

(d) When will the balance be \$1,400?



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5. The graph shows the exponential function $FV = 1,100 \times \left(1 + \frac{6.125}{100}\right)^t$ representing the balance of an investment account earning a fixed rate of interest over t in years.

   (a) Write down the initial deposit in the account.

   (b) What is the annual interest rate?

   (c) Approximately how much will the account hold at the end of ten years?

   (d) When will the balance be \$1,400?