MATH1040 Basic Mathematics **Practice Problems 9**

1. Answer each of the following questions, showing all working:

(**1**) Find y' where $y = -4 + x$

(**2**) Find y' where $y = 8x^2 + 6 + 7x$

(**3**) Find y' where $y = 4x^2 - \dfrac{5}{x^5}$

(**4**) Find y' where $y = -7\sin x - \cos x$

(**5**) Find y' where $y = 6e^x$

(**6**) Find y' where $y = 3\sqrt{x} + 3e^x - 8x^7$

(**7**) Let $f(x) = -x^3 + 3x^2 + 45x$.
Q1 Find $f'(x)$.
Q2 Solve $f'(x) = 0$.
Q3 Find $f''(x)$.
Q4 Find $f'(-5)$.

2. Answer each of the following questions, showing all working:

(**1**) Find y' where $y = 2$

(**2**) Find y' where $y = 6x^2$

(**3**) Find y' where $y = -\dfrac{6}{x^3} + 3x^6 - 7x^5$

(**4**) Find y' where $y = 2\cos x + \sin x$

(**5**) Find y' where $y = 4\ln x - 5e^x$

(**6**) Find y' where $y = \sin x$

(**7**) Let $f(x) = -x^3 + 3x^2 + 45x$.
Q1 Find $f'(x)$.
Q2 Solve $f'(x) = 0$.
Q3 Find $f''(x)$.
Q4 Find $f'(3)$.

3. Answer each of the following questions, showing all working:

(**1**) Find y' where $y = -3x - 7$

(**2**) Find y' where $y = 6x^2 + 1$

(**3**) Find y' where $y = \dfrac{6}{x^4} + 7x^4 - \dfrac{8}{x^3}$

(**4**) Find y' where $y = -8\cos x$

(**5**) Find y' where $y = -\ln x$

(**6**) Find y' where $y = 2\cos x$

(**7**) Let $f(x) = -x^3 - 6x^2$.
Q1 Find $f'(x)$.
Q2 Solve $f'(x) = 0$.
Q3 Find $f''(x)$.
Q4 Find $f'(6)$.

4. Answer each of the following questions, showing all working:

(**1**) Find y' where $y = -7 + x$

(**2**) Find y' where $y = 5x^2 + 5x$

(**3**) Find y' where $y = \dfrac{4}{x^3} - \dfrac{1}{x^7}$

(**4**) Find y' where $y = -2\sin x$

(**5**) Find y' where $y = -6\ln x$

(**6**) Find y' where $y = 3\sqrt{x} + \sin x$

(**7**) Let $f(x) = x^3 + 6x^2 - 15x$.
Q1 Find $f'(x)$.
Q2 Solve $f'(x) = 0$.
Q3 Find $f''(x)$.
Q4 Find $f'(4)$.

5. Answer each of the following questions, showing all working:

(**1**) Find y' where $y = 5x$

(**2**) Find y' where $y = 6x^2 + 3x$

(**3**) Find y' where $y = 7x^7 - x^5$

(**4**) Find y' where $y = 7\cos x + 2\sin x$

(**5**) Find y' where $y = -3\ln x$

(**6**) Find y' where $y = \ln x$

(**7**) Let $f(x) = -x^3 + 3x^2 + 9x$.

Q1 Find $f'(x)$.

Q2 Solve $f'(x) = 0$.

Q3 Find $f''(x)$.

Q4 Find $f'(6)$.