(C1-8.2a) Name:

Homework Questions 2 – Integration

Find either y or f'(x) when given... (Simplify your answers if possible)

1.
$$\frac{dy}{dx} = 3x^4 + 2x^2$$

$$f(x) = \frac{3x^5}{5} + \frac{2x^3}{3} + c$$

2. $f'(x) = 6x^5 - 3x^4$

$$f(x) = x^6 - \frac{3x^5}{5} + c$$

3.
$$\frac{dy}{dx} = 2x^4 - 3x^2 + x + 2$$

$$y = \frac{2x^5}{5} - x^3 + \frac{x^2}{2} + 2x + c$$

4.
$$\frac{dy}{dx} = 4x^3 - 2x^{\frac{1}{2}} + 3$$

$$y = x^4 - \frac{4}{3}x^{\frac{3}{2}} + 3x + c$$

5.
$$\frac{dy}{dx} = 10x - 4x^3 + 2x^{-3}$$

$$y = 5x^2 - x^4 - x^{-2} + c$$

6. $f'(x) = 7x^2 + 5x + 4$

$$f(x) = \frac{7x^3}{3} + \frac{5x^2}{2} + 4x + c$$

7. $f'(x) = -3x^{-4} - 2x^{-3} + 6$

$$f(x) = x^{-3} + x^{-2} + 6x + c$$

8.
$$\frac{dy}{dx} = x^{\frac{1}{2}} + x^{\frac{1}{3}} - x^{\frac{1}{4}}$$

$$y = \frac{2}{3}x^{\frac{3}{2}} + \frac{3}{4}x^{\frac{4}{3}} - \frac{4}{5}x^{\frac{5}{4}} + c$$

9.
$$\frac{dy}{dx} = x^{-\frac{2}{3}} + 2x^{\frac{1}{2}} - 3x$$

$$y = 3x^{\frac{1}{3}} + \frac{4}{3}x^{\frac{3}{2}} - \frac{3x^3}{2} + c$$

10.
$$f'(x) = 6 - 5x^{\frac{2}{3}} - 4x^{\frac{3}{4}}$$

$$f(x) = 6x - 3x^{\frac{5}{3}} - \frac{16}{7}x^{\frac{7}{4}} + c$$