

NAME: _____
DATE: _____

DERIVATIVE AND INTEGRAL PRACTICE
POLYNOMIALS

$$f(x) = \sum Cx^n,$$

$$\text{slope} = \sum nCx^{n-1}$$

$$\text{area} = \int f(x) dx = \frac{1}{n+1} Cx^{n+1}$$

Calculate the (1) slope and (2) area under the graph.

1. $f(x) = -3x$

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

3. $f(x) = -x^6$

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

5. $f(x) = 5x^3 - 2x^2 + 10x - 15$

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

7. $f(x) = x + \frac{1}{2}x^4 - \frac{3}{4}x^3 + 10$

8. $f(x) = \pi x^4 + \sqrt{6}$

9. $f(x) = 7x - \sqrt{3} + \pi x^2$

10. $f(x) = x^5 + \frac{1}{2}x^{1/2} - \frac{3}{4}x^{-1/4} + x^{-2} + 10x^{-9}$