

Ws 3.6 Chain Rule

Name: \_\_\_\_\_

Find  $dy/dx$ .

1.  $y = (x^3 + 2x)^{37}$

2.  $y = (3x^2 + 2x - 1)^{16}$

3.  $y = \left(x^3 - \frac{7}{x}\right)^{-2}$

4.  $y = \frac{1}{(x^5 - x + 1)^9}$

5.  $y = \sqrt{x^3 - 2x + 5}$

6.  $y = \sqrt{4 + 3\sqrt{x}}$

7.  $y = (2x^4 - x^{-2} + 8)^{-2}$

8.  $y = \frac{2x}{(3x^4 + 2x^2 - x^{-1})^3}$

9.  $y = x^2 \sqrt{5 - x^2}$

10.  $y = \frac{x}{\sqrt{1 - x^2}}$

## Trig Derivatives

Find  $dy/dx$ .

11.  $y = \sin^3 x$

12.  $y = \sin(x^3)$

13.  $y = \tan(4x^2)$

14.  $y = \tan^4(x^3)$

15.  $y = \cos^3\left(\frac{x}{x+1}\right)$

16.  $y = \sqrt{\cos(5x)}$

17.  $y = 2\sec^2(x^7)$

18.  $y = \sqrt{3x - \sin^2(4x)}$

19.  $y = (\sqrt{x})(\tan^3(\sqrt{x}))$

20.  $y = \cos(\cos(x))$