Entry #: _____

Lesson 2.4: Chain Rule

Chain Rule

If $y = f(g(x))$, then $y' =$
or in another form: $\frac{d}{dx} f(u) =$ (where u is a function of x)

Examples: Differentiate the following.

1. $y = (x^2 - 3)^2$

2. $y = \sin(3x)$

3. $f(x) = \sqrt{(3x^2 - x)^3}$

4. $y = \cos^2 x$

5. $g(x) = \frac{1}{2x+1}$

6. $f(t) = \sin^3(4t^2)$

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

8. $If\ p(2) = 5, q(2) = 3, q'(2) = 2,\ p'(3) = 4, and\ q'(3) = \frac{3}{2}, find\ \frac{d}{dx}p\big(q(x)\big) at\ x = 2.$