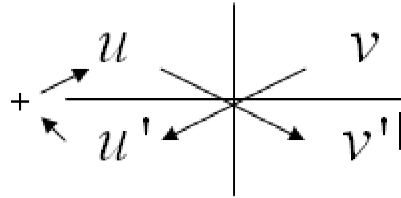


## Product Rule

p. 193-198 (3.2)

# 23

$$\frac{d}{dx} [uv] = vu' + uv'$$



$$= (1\text{st})(\text{deriv. of } 2\text{nd}) + (2\text{nd})(\text{deriv. of } 1\text{st})$$

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Find the derivatives.

1. Find  $y'$  if  $y = (2x^3 - 5x + 3)(-(x^2) - 2)$ .

2. Find the instantaneous rate of change for  $f(x) = 3\sqrt{x}(2x^2 - 5x)$  at  $x = 4$ .

3. Considering  $r(x)$  and  $t(x)$  are differentiable functions, find the equation for the line tangent to  $q(x)$  at  $x = -3$ , if  $q(x) = r(x)t(x)$ .

$x$	$r(x)$	$t(x)$	$r'(x)$	$t'(x)$
-3	-4	2	-2	3

4. Considering  $f(x)$  and  $g(x)$  are the functions shown in the graph. Let  $v(x) = f(x) \cdot g(x)$ .

a) Find  $v'(5)$ .      b) Find  $v'(0)$ .

