Section 10.4 Solutions

#19] $f(x) = (4 + 0.2x)^5$

Use General Power Rule

$f'(x) = 5u^{5-1}u'$

where $u = 4 + .2x$

$u' = .2$

$f'(x) = 5(4 + 0.2x)^4(.2)$

$= (4 + .2x)^4$

#47] $g(x) = 4x\, e^{3x}$

Use Product Rule

$g'(x) = FS' + F'S$

$= 4x(3e^{3x}) + 4e^{3x}$

$= 4e^{3x}(3x + 1)$

$F = 4x$

$F' = 4$

$S = e^{3x}$

Use General e^u rule

$S' = 3e^{3x}$

#63] $f(x) = x^2(x-5)^3$

Use Product Rule

$f'(x) = FS' + F'S$

$= x^2(3)(x-5)^2 + 2x(x-5)^3$

$= x(x-5)^2(3x + 2(x-5))$

$= x(x-5)^2(5x - 10)$

$= 5x(x-5)^2(x-2)$

$F = x^2$

$F' = 2x$

$S = (x-5)^3$

Use General Power Rule

$S' = 3(x-5)^2(1)$