

2 Oct Recitation Worksheet for MA141

1. Find the derivative of the following functions:

- (a) $f(x)g(x)$
- (b) $f(x)/g(x)$
- (c) $f(g(x))$
- (d) $f(x)g(x)h(x)$
- (e) $f(x)^n$
- (f) $f(g(h(x)))$

2. Find the derivative of the following functions:

- (a) $f(x) = 2x^3/3 + x^2 - 4x$
- (b) $g(x) = (2x - 1)(x^3 - 4x - 2)$
- (c) $f(x) = \sin x \cos x$
- (d) $h(t) = (2t - 5)^2$
- (e) $h(t) = (2t - 5)^{10}$
- (f) $v(t) = e^{3t^2 - 10t}$
- (g) $f(x) = x^{1/3} \sin x$
- (h) $g(x) = \frac{\sin(x^2)}{e^x}$
- (i) $w(n) = e^{\sin n}$
- (j) $f(x) = \cos(e^x)$
- (k) $g(x) = \sin(\cos(\sin x))$
- (l) $h(t) = \frac{t^{1/3} - t^{-1}}{\sin(t) \cos(t)}$

3. Find the equation of the tangent line of the following functions at (i) $x = 0$ and (ii) $x = 2$

- (a) $f(x) = 2x^3/3 + x^2 - 4x$
- (b) $g(x) = (2x - 1)(x^3 - 4x - 2)$
- (c) $v(t) = e^{3x^2 - 10x}$
- (d) $w(n) = e^{\sin x}$