

1.  $y = \sin(3x)$   $y' = 3\cos(3x)$

2.  $y = (x^2 + 5)^{10}$   $y' = 20x(x^2 + 5)^9$

3.  $y = 3\tan^5 x$   $y' = 15\tan^4 x \sec^2 x$

4.  $y = \sqrt{4x^{10} + 2x^5 + x^2}$   $y' = \frac{20x^9 + 5x^4 + x}{\sqrt{4x^{10} + 2x^5 + x^2}}$

5.  $y = \frac{2}{\sin x}$   $y' = -2\csc x \cot x$  or  $-\frac{2\cos x}{\sin^2 x}$

6.  $y = \csc(\tan x)$   $y' = -\csc(\tan x) \cot(\tan x) \sec^2 x$

\* u-sub (7)  $y = \cos\sqrt{4x^2 + 2x}$   $y' = \frac{(-4x-1)\sin\sqrt{4x^2+2x}}{\sqrt{4x^2+2x}}$

8.  $y = \frac{1}{\cot(3x)}$   $y' = 3\sec^2(3x)$  or  $\frac{3}{\cos^2(3x)}$

9.  $y = 100(10x + 5)^{20}$   $y' = 20000(10x + 5)^{19}$

\* u-sub (10)  $y = 2\sin(\cos^4 x)$

$y' = -8\cos(\cos^4 x) \cdot \cos^3 x \cdot \sin x$