Supplemental Instructions

1

a) $y' = -\frac{3x}{\sqrt{1-3x^2}}$

b) $-2sin(x)cos(2cos(x))$

c) $2(sin(2x) + cos(2x))$

2

a) $2x + 2yy' = 0$
$2yy' = -2x$
$y' = \frac{-2x}{2y} = -\frac{x}{y}$

b) $3x^2 + 3y^2y' = 1 + 2y'$
$3x^2 - 1 = -3y^2y' + 2y'$
$3x^2 - 1 = y'(2 - 3y^2)$
$\frac{3x^2-1}{2-3y^2} = y'$

3

a) $y(x) = x^2 \implies x(y) = \sqrt{y}$

b) $y(x) = 2^x \implies x(y) = \log_2 y$

c) $y(x) = tan(x) \implies x(y) = \arctan y$

d) $y(x) = 1/x \implies x(y) = 1/y$

4

$f(x) = x^2 \implies f^{-1}(x) = \sqrt{x}$
$f'(x) = 2x$
$\frac{d}{dx}f^{-1}(x) = \frac{1}{f'(f^{-1}(x))}$ $\frac{d}{dx}\sqrt{x} = \frac{1}{f'(\sqrt{x})} = \frac{1}{2(\sqrt{x})}$

5

a) 3

b) $2\sqrt{2}$

c) 1

d) x^5

e) $ln\frac{64}{81}$

f) $x = \frac{ln(2)}{ln(2)-ln(3)}$

6

a) $e^x(x+1)-1$

b) e^{x+e^x}

c) $ln(x)$

7

a) $\frac{1}{\sqrt{-x^2+x+2}}$

b) $2xarctan(x)+1$

c) $arccos(x) - \frac{x}{\sqrt{1-x^2}}$