

DIFFERENTIATION WORKSHEET V

Find the following derivatives:

$$(1) \frac{d}{dx} \left(\ln \left(\frac{3x+2}{2x-1} \right) \right)$$

$$(2) \frac{d}{d(3x^2)} (\arctan(3x^2) \log_5(3x^2))$$

$$(3) \frac{d}{dy} \left(\frac{y}{5^y} \right)$$

$$(4) (\sin(3x \arccos(x)))'$$

$$(5) (3\sqrt[3]{2x^3+5})'$$

Calculate $\frac{dy}{dx}$ for the following curves:

(1) $x^2 + xy + y^2 = 0$

(2) $\cos(x + y) = x^2 + 3y$

(3) $\ln(y) = y^3 + x^3$