

MTH 251
LAB §3.4

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1. Find the following derivatives.

a. $\frac{d}{dx}(\sin(2x))$	g. $\frac{d}{dx}(\sqrt{3x})$	l. $\frac{d}{dx}((3x+1)^5)$	p. $\frac{d}{dx}\left(\frac{1}{3x}\right)$	t. $\frac{d}{dx}(e^{2x})$
b. $\frac{d}{dx}(\sin(3x))$	h. $\frac{d}{dx}(\sqrt{4x})$	m. $\frac{d}{dx}((4x+1)^5)$	q. $\frac{d}{dx}\left(\frac{1}{4x}\right)$	u. $\frac{d}{dx}(e^{3x})$
c. $\frac{d}{dx}(\sin(4x))$	i. $\frac{d}{dx}(\sqrt{5x})$	n. $\frac{d}{dx}((5x+1)^5)$	r. $\frac{d}{dx}\left(\frac{1}{5x}\right)$	v. $\frac{d}{dx}(e^{4x})$
d. $\frac{d}{dx}(\sin(5x))$	j. $\frac{d}{dx}(\sqrt{6x})$	o. $\frac{d}{dx}\left(\frac{1}{2x}\right)$	s. $\frac{d}{dx}\left(\frac{1}{6x}\right)$	w. $\frac{d}{dx}(e^{5x})$
e. $\frac{d}{dx}(\sin(6x))$	k. $\frac{d}{dx}((2x+1)^5)$			x. $\frac{d}{dx}(e^{6x})$
f. $\frac{d}{dx}(\sqrt{2x})$				

2. Find $\frac{d}{dy}((3y^3 - 2y^2 + y)^{2017})$

3. Find $f'(y)$ if $f(y) = \sin^3 y$

4. Find $\frac{d}{dx}\left(\sqrt{\frac{x+1}{x-1}}\right)$

5. Find y' if $y = \sin(\cos t)$

6. Find $\frac{dy}{dx}$ if $y = \sqrt{x + \sqrt{x}}$

7. Find $\frac{dy}{dx}$ if $y = e^{-x^2}$

8. Find the equation of the line tangent to $y = \tan(\sin x + 1)$ at the point $(-\frac{\pi}{2}, 0)$.