

Name: _____

MA 2310: Quiz 3

Show all work for credit.

1. $\lim_{x \rightarrow 0^+} \frac{1}{x^2}$

2. $\lim_{x \rightarrow 0^-} \frac{1}{x^2}$

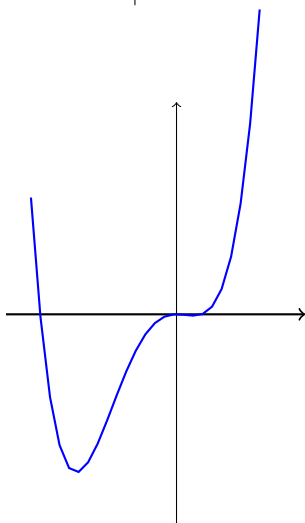
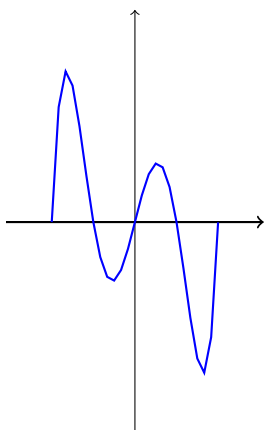
3. $\lim_{x \rightarrow 0} \frac{1}{x^2}$

4. Compute the derivative using the **definition** of the derivative

(a) $f(x) = 3x + 5$ at $x = -1$

(b) $f(x) = 2x^2 + 3x$

5. From the graphs below sketch the derivatives



6. Compute the derivative from the formulae.

(a) $f(x) = 3x + 5\sqrt{x} - \sin(x)$

(b) $f(x) = 5 \cos(x) - 4 \ln(x) + \cos(x)$

(c) $f(x) = \frac{1}{x} - \sqrt{x}$

(d) $f(x) = \frac{4-2x+2x^2}{\sqrt{x}}$

(e) $f(x) = \frac{4\sqrt{x}-2+x^{3/2}}{\sqrt{x}}$

(f) $f(x) = \frac{4\sqrt{x}-2}{x^{3/2}}$

(g) $f(x) = 4 \sin(x) - 2e^x + 3 \cos(x)$