

# Homework 6

Name:

Date: July 20, 2015

**P 1.** Find the value of the following improper integral. If it diverges, state so and explain why.

$$\int_0^8 \frac{3}{\sqrt{8-x}} dx$$

**P 2.** Find the limit.

$$\lim_{x \rightarrow a^+} \left(1 + \frac{1}{x}\right)^x$$

where

$$a = \lim_{x \rightarrow b} \frac{(3x + 2)^{200}(2x - 1)}{(x + 1)^{202}}$$

$$b = \lim_{x \rightarrow c^+} \frac{(x^2 + 9x) \sin x}{(x - 23)(x + 1)}$$

$$c = \lim_{x \rightarrow 0^+} \frac{\sin 23x}{x}$$