

### Math 251: Pledged Set 7

Due: March 23, 2010

*This is a pledged set. Therefore, no outside help from book, calculator, or other people.*

1. Calculate

$$\lim_{x \rightarrow \infty} \frac{\ln x}{\sqrt{x}}.$$

2. Use Newton's Method to get  $x_2$  for the equation

$$x^5 + 2$$

with  $x_1 = -1$ .

3. Find the antiderivative of

$$\sqrt[4]{x^3} + \sqrt[3]{x^4}.$$

4. A particle is moving with the given data. Find the position of the particle when

$$a(t) = \cos(t) + \sin(t), \quad s(0) = 0, \quad v(0) = 5$$

5. Find the point on the parabola  $y^2 = 2x$  that is closest to the point  $(1, 4)$ .