Final Examination
201-NYA-05 S06
Calculus I - Chem. Tech./Lab Tech.

Question 1. Evaluate the following limits

a. *(4 marks)*

$$\lim_{x\to\infty} \frac{7x^{10} - x^6 - 1}{3x^{10} - 20x - 1}$$

b. *(4 marks)*

$$\lim_{x\to 1} \frac{\sqrt{x-3}-2}{x-1}$$

c. *(4 marks)*

$$\lim_{x\to 2} \frac{3x^2 - 5x - 2}{x^2 - 4}$$

Question 2.

b. *(5 marks)*

$$\int_0^{\pi/2} \frac{2t^2}{t^3 - 1}\, dt$$

Question 6. *(5 marks)* Find the equation of the tangent to the curve $y = x^2\sqrt{x-1}$ at $x = 3$.