1. (10 points) Mark the following statements "True" or "False" (-2 points for wrong answers!) 
(a) The lines \(x+2y=3\) and \(2x+y=3\) are parallel.
(b) \(2^x \cdot 3^x = 6^x\).
(c) \(\frac{d}{dx} 2^x = x \cdot 2^{x-1}\).
(d) \(\frac{d}{dx} (x+2)^3 = 3(x+2)^2\).
(e) The tangent line to \(y = -x^3\) at \((-2, 8)\) has slope 12.

2. (16 points) Compute the following limits:
(a) \(\lim_{x \to 1} \left( x^2 - x + \frac{2}{x} \right) \)
(b) \(\lim_{h \to 0} \frac{3h^2 - 16}{h + 4}\)
(c) \(\lim_{t \to \infty} \left( \sqrt{t+1} - \sqrt{t+1} \right)\)
(d) \(\lim_{t \to -\infty} \frac{t + t^3}{2t^2 + 1}\)

3. (16 points) Compute the derivatives of the following functions (using only the methods of Ch. I):
(a) \(\frac{1}{(2x^2+2)^2}\)
(b) \(\frac{1}{x(x+1)}\)
(c) \(\sqrt{2x} + \sqrt{\frac{x}{2}}\)
(d) \(\sqrt{x + (2x^2+1)^3}\)

4. (14 points) Use the Newton Quotient Method to compute \(\frac{d}{dx} \sqrt{x}\). Find the equation of the tangent line to \(y = \sqrt{x}\) at \(x = 9\), and use this information to compute (approx.) \(\sqrt{8.9}\).

5. (14 points) (a) Compute \(\frac{d}{dx} \left( \sqrt{x + \frac{1}{x}} \right)^2\) by two different methods, and check that your answers are the same.
(b) If \(f(2) = \frac{1}{3}\) and \(f'(2) = 12\), what is \(\frac{d}{dx}(f(x)^3)\) at \(x = 2\) ?

6. (10 points) Find \(a\) and \(b\) in the picture to the right: