True/False (1 pt. each)
Answer "True" or "False" to the following questions, rather than simply "T" or "F".
1. False $x^2 + b^2 = (x + b)^2$
2. False $\frac{a + b}{b} = a$
3. False $\frac{a}{b} + \frac{c}{d} = \frac{a + c}{b + d}$
4. True $\frac{a \cdot c}{b \cdot d} = \frac{ac}{bd}$

Problem Section
Solve each of the following differential equations. Show all of your work. (i.e. $u = 1-5x$, etc.) If you run out of room, you may use additional sheets of paper. Be aware of problems on the back of the page.

1. (2 pts.) Factor

$$x^2 + 13x + \frac{133}{4}.$$ 

$$\frac{-13 \pm \sqrt{169-133}}{2}$$

$$\frac{-13 \pm \sqrt{36}}{2}$$

$$\frac{-13 \pm 6}{2}$$

$$\frac{-19}{2}, \frac{-7}{2}$$

$$x^2 + 13x + \frac{133}{4} = (x + \frac{19}{2})(x + \frac{7}{2})$$
2. (2 pts.) Evaluate $f(2)$ where

$$f(x) = (|x + |x - 5| - 17|)^2.$$

$$f(2) = (|2 + |2 - 6| - 17|)^2$$
$$= (|2 + |3 - 17|)^2$$
$$= (|2 + 14 - 17|)^2$$
$$= (|12|)^2$$
$$= 12^2$$
$$= 144$$

3. (2 pts.) Find an equation for the line between the points $(6, -2)$ and $(1, 3)$.

$$\frac{-2 - 3}{6 - 1} = \frac{-5}{5} = -1$$

$$y - y_0 = m(x - x_0)$$
$$y - (-2) = -1(x - 6)$$
$$y + 2 = -(x - 6)$$
$$y = -x + 6 - 2$$
$$y = -x + 4$$