Summer 2014 CI 161 M1 Study Problems
Fresno State/Burger

(10pts each)

1. Solve the following quadratic expression using the **ac**-method (cloud):

$$45x^2 + 8x - 21 = 0$$

2. Draw a labeled *xy*-tile diagram to solve: $\frac{2x^2 - y^2 + xy + 5x - y + 2}{2x - y + 1}$

3. Solve the following equation using ONLY algebra tile completing-the-square diagrams:

$$x^2 - 8x = -15$$

Binomial Expansion

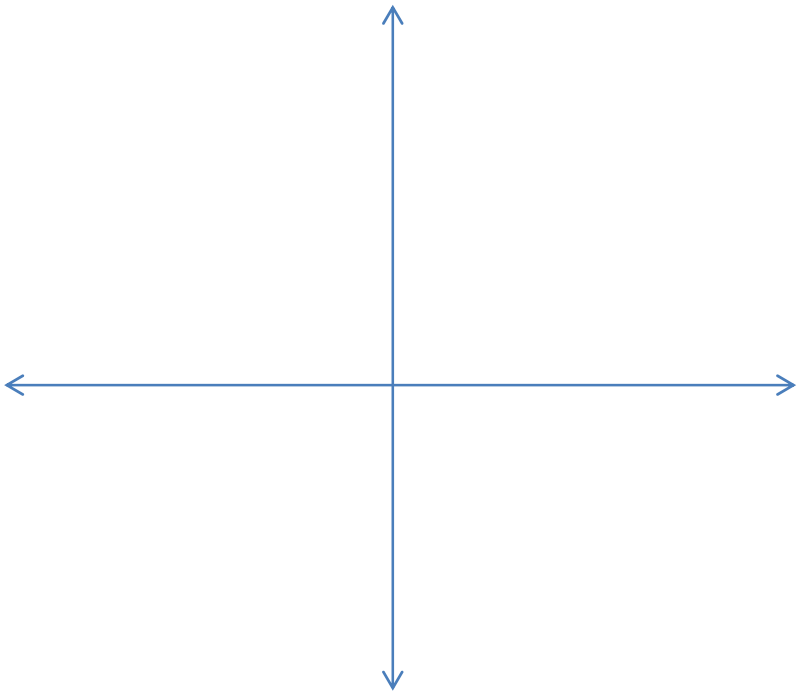
4. For $\left(2x^2 + \frac{1}{x}\right)^9$ find:
   a. The 4th term.
   b. The middle term.
   c. The term with no x.

5. Learning Theory Place a **+ or – R or + or – P** in the classification box if you think the example is of Positive or Negative reinforcement, or positive or Negative **Punishment**:

Classification	Exhibited behavior	Consequences	Probable future effect on behavior
	Dan complains of headaches when it is time to do math homework.	Dan is allowed to go to bed without doing his math homework.	Dan will have headaches whenever there is math homework to do.
	Marta sits on the arm of the chair.	Marta is spanked each time she sits on the arm of the chair.	Marta will not sit on the arm of the chair.
	Rob works quietly at his seat.	The teacher allows Rob to not have to go to the board to solve a problem.	Rob will continue to work quietly at his seat.
	Jason complains that older boys consistently beat him up, and he refuses to attend school.	Jason's parents allow him to remain at home because of his complaints.	Jason will continue to complain and miss school.
	Jane cleans her room.	Jane's parents let her stay up late on nights her room is clean.	Jane will continue to clean her room.
	Carmen gets an A on her math test	Carmen receives $20 from her parents for the A.	Carmen will continue to get A's on her Math tests.
	Takeo puts Gwen's pigtails in the paint.	The teacher has Takeo stay in class and miss recess.	Takeo will not put Gwen's pigtail in the paint.

6. Completely factor and draw a sketch of the graph of:

$f(x) = x^3 - 3x^2 + 4$



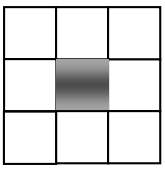
$f(x) =$

7. You are given one of the roots of the polynomial $f(x) = x^3 - x + c$ is $1 + i\sqrt{2}$. Find c.

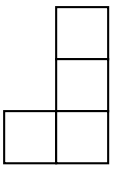
8. **Function composition:** Let $f(x) = 3x^2 + 1$, $g(x) = x - 2$ and $t(x) = x - 13$ find a formula for $(t \circ f \circ g)(x)$ and express the formula in its most 'expanded and simplified' form.

9. Using your unit cube blocks, construct the following:

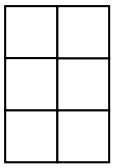
Side view



Front View



Top View



Compute:
Surface Area (in u^2):

Volume (in u^3):

$\left(\frac{SA}{V}\right)$=

What is ratio now if quadrupled twice?

Round to two decimals.