Try these 16 questions. Write all your working out and answers neatly by hand on your own notepaper and hand them to me next week. Please use lots of space and as many pages as you want, so I can include corrections or comments - otherwise I may ask you to redo it. It must be your own note paper, not a printout of this. You do not need to write the questions, but it is very important that you show clearly any work you had to do to get your answers. Each question is worth 2 points.

Section 6.2 Factor trinomials

(1) Factor the trinomial: $x^2 + 9x + 20$

(Hint: we are looking for $(x+\ \ )(x+\ \ )$, so which two numbers go in these gaps? Their product must be 20 and they must add up to 9.)

(2) Factor the trinomial: $x^2 - 4x + 3$

(3) Factor:

  (a) $x^2 - 2x - 35$

  (b) $x^2 - 2xy - 35y^2$

(Hint: for part (b) include ys in your factors.)

(4) Use the ac-method to factor $2x^2 + 7x + 3$ with these steps:

  (a) Write the numbers ac and b by comparing with $ax^2 + bx + c$.

  (b) Find two numbers so that $ac = (\ \ )(\ \ )$ and $b = (\ \ ) + (\ \ )$.

  (c) Use these two numbers to split the middle term (something like $2x^2 + 2x + 5x + 3$).

  (d) Factor this by grouping to get the answer.

  (e) You can check your factors are correct by FOILing them and getting the original expression $2x^2 + 7x + 3$.

(5) Use the ac-method to factor: $3x^2 - 2x - 8$

(6) Use the ac-method to factor: $6x^2 - 5xy - 25y^2$

Section 6.3 Factor special products

(7) Simplify this by multiplying it out:

$$(3x - 4)^2$$

(Hint: you can do this by FOILing - the answer is not $9x^2 + 16$.)

(8) Factor this by recognizing it as a perfect square trinomial:

$$64x^2 + 16x + 1$$

(Hint: try to fit it to the pattern $a^2 + 2ab + b^2 = (a + b)(a + b)$.)

(9) Factor this by recognizing it as a perfect square trinomial:

$$25r^2 - 60rs + 36s^2$$

(10) Factor if possible:

(a) $36x^2 - 25$

(b) $36x^2 + 25$

(11) Factor these differences of squares: **(a)** $64y^2 - 1$ **(b)** $400 - 49t^2$ **(c)** $81x^2 - 121b^2$

Section 6.4 General strategy for factoring polynomials

(12) Factor completely: $10x^2 + 130x + 300$

(Always a good idea to factor out any GCF first. Then factor the remaining trinomial here. Does your answer look like $10(x + 3)(x + 10)$?)

(13) Factor completely: $3x^2y - 12y^3$

(Hint: GCF? Then look for a difference of squares here.)

(14) Use the appropriate methods to factor completely: $15x^2 + 48x + 9$

(15) Use the appropriate methods to factor completely: $200x^4 - 18$

(16) Use the appropriate methods to factor completely: $4xy + 36x - 20y - 180$

If you get stuck on a question or aren't sure if you understand it:

- Go over the relevant class notes and section in the textbook.

- Check if you get the right answer for a similar odd-numbered question in the text-book (answers at the back of the book).

- Ask me about it after class.

- Come to my office hours: Mon 11:30 - 12:30, Wed 11:30 - 12:30 in CP 317.

- Go to the Math Tutorial Lab in-person in CP 303 or online.