Factoring $ax^2 + bx + c$

Summary

1. Always look for a greatest common factor (GCF) to factor out *first*.
2. We will use the *ac*-method of factoring with grid

Recall for multiplying $(2x + 3)(7x - 1)$:

	$7x$	-1
$2x$		
3		

The *ac*-Method of Factoring $ax^2 + bx + c$

1. Check for a GCF first. Factor out if applicable.
2. Multiply the values of a and c.
3. Find 2 numbers that
   - Multiply to make the value of ac AND
   - Add to make the value of b.
4. *Note:* Factor out a negative when applicable.

For instance, to factor $5x^2 - 14x + 8$:

1. Multiply 5 and 8 to get 40.
2. Find 2 numbers that
   - Multiply to make 40 AND
   - Add to make -14

$5x^2$	
	8

Example 1. Factor each completely. Don't forget to check for a GCF first.

(a) $3x^2 - 20x + 28$

(b) $2x^2 - 9x - 35$

(c) $3x^2 - 13x + 4$

(d) $3x^2 + 10x - 8$

(e) $12x^2 - 5x - 2$

(f) $8x^2 - 22x + 5$

(g) $8x^6 - 10x^5 - 3x^4$

(h) $6x^6 + 19x^5 - 7x^4$