Write each quadratic in Vertex Form.

1. $y = x^2 + 8x - 11$

first, find the Vertex

LOS: $x = \frac{-8}{2} = -4$

$(-4, -27)$

the coefficient a is the same in both forms

$y = 1(x+4)^2 - 27$

2. $y = -2x^2 + 12x + 7$

first, find the Vertex

LOS: $x = \frac{-12}{-4} = 3$

$(3, 25)$

$y = -2(x-3)^2 + 25$

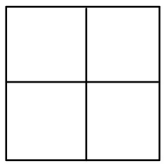
Sec 5-4 Factoring Quadratic Expressions

Factoring should always start with GCF

After removing a GCF, if there is one, ...

If you still have a trinomial quadratic you should do the following.....

then, if needed,



After removing a GCF, if there is one, ...

If you still have binomial you should look for the following.....

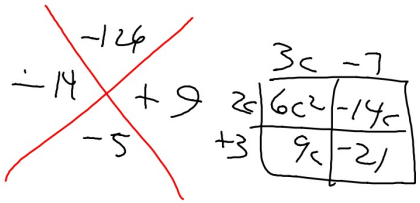
$a^2 - b^2$ this is called the difference of perfect squares and ALWAYS factors into...

$(a + b)(a - b) = (a \pm b)$

Factor each completely.

1. $36c^3 - 30c^2 - 126c$

$6c(6c^2 - 5c - 21)$



	$3c$	-7
$2c$	$6c^2$	$-14c$
$+3$	$9c$	-21

$6c(3c-7)(2c+3)$

2. $175m^3 - 252m$

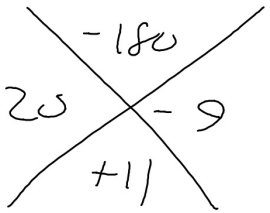
$7m(25m^2 - 36)$

$7m(5m \pm 6)$

Factor each completely.

$4x^4 + 11x^2 - 45$

Our book calls this factoring using a quadratic pattern.



	x^2	$+5$
$4x^2$	$4x^4$	$20x^2$
-9	$-9x^2$	-45

$(x^2+5)(4x^2-9)$

$(x^2+5)(2x \pm 3)$

1. 180
2. 90
3. 60
4. 45
5. 36
6. 30
* 9. 20

Factor each completely.

$6x^{11} - 1536x^3$

$\sqrt{256} = 16$

$\sqrt{x^8} = x^4$

both x^8 and 256 are perfect squares

$6x^3(x^8 - 256)$

$6x^3(x^4 + 16)(x^4 - 16)$

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

$(x+2)(x-2)$

$6x^{11} - 1536x^3 = 6x^3(x^4 + 16)(x^2 + 4)(x + 2)(x - 2)$

Factor completely.

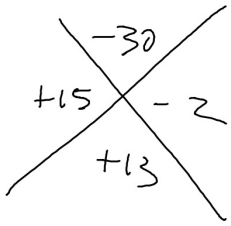
$$\frac{32}{75}k^2 - \frac{8}{27}$$

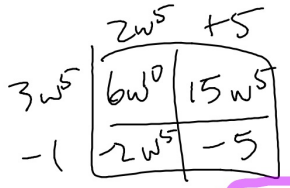
$\frac{8}{3}\left(\frac{4}{25}k^2 - \frac{1}{9}\right)$

$\frac{8}{3}\left(\frac{2}{5}k + \frac{1}{3}\right)$

Factor each completely.

$$6w^{10} + 13w^5 - 5$$





$(3w^5 - 1)(2w^5 + 5)$

you can now finish hwk #18. Sec 5-4

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problems 11, 23, 33, 40, 51, 59, 64, 65