

Warm up: Factor  $ax^2+byx+cy^2$

$$\textcircled{1} -4h^4 + 11k^2h^2 + 3k^4$$

$(h^2)^2 \quad (k^2)(h^2) \quad (k^2)^2$

Let  $x=h^2$  and  $y=k^2$

$$-4x^2 + 11yx + 3y^2$$

$$= -(4x^2 - 11yx - 3y^2)$$

$4 \cdot -3$   
 $\otimes$ 

-12	(3, -4)	(4, -3)	(1, -12)	(12, -1)	(2, -6)	(6, -2)
⊕	-1	1	-1			

$$= - \left( (4x^2 + yx) + (-12yx - 3y^2) \right)$$

$$= - \left( x(4x+y) - 3y(4x+y) \right)$$

$$= - \left[ (4x+y)(x-3y) \right]$$

$$= - \left[ (4h^2+k^2)(h^2-3k^2) \right]$$

$$\textcircled{2} 2x^{2n} - 20x^ny^m + 50y^{2m}$$

$$2 \left( x^{2n} - 10x^ny^m + 25y^{2m} \right)$$

$(x^n)^2 \quad (x^n)(y^m) \quad (y^m)^2$

Let  $a=x^n$  and  $b=y^m$

$$2 \left( a^2 - 10ab + 25b^2 \right)$$

$$\sqrt{1^{\text{st}}} = \sqrt{a^2} = a$$
$$\sqrt{\text{last}} = \sqrt{25b^2} = 5b$$

check middle:  $\pm 2(a)(5b)$   
 $= \pm 10ab$

$$= 2(a-5b)^2$$

$$= 2(x^n - 5y^m)^2$$

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For the rest of the unit, we will be focusing on graphs of quadratics (Graph paper = very useful)

Quadratics (degree 2) are written as  $f(x) = ax^2 + bx + c$   
( $a \neq 0$ )

Also called parabolas.