

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

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

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

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

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

$\otimes -12$	$(-3, 4)$	$(3, -4)$	$(-2, 6)$	$(-6, 2)$	$(1, -12)$	$(12, -1)$
$\oplus -11$	1	-1	4	-4	-11	

$$-(4x^2 + 1yx)(-12yx - 3y^2)$$

$$- [x(4x + y) - 3y(4x + y)]$$

$$- [(4x + y)(x - 3y)]$$

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

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

$$2(x^{2n} - 10x^n y^m + 25y^{2m})$$

$$\sqrt{\text{1st}} = \sqrt{x^{2n}} = \sqrt{(x^n)^2} = x^n$$

$$\sqrt{\text{last}} = \sqrt{25y^{2m}} = \sqrt{(5y^m)^2} = 5y^m$$

check middle: $\pm 2(x^n)(5y^m)$
 $\oplus 10x^n y^m$

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

For the rest of the unit, we
will be graphing quadratics
(graph paper is super helpful)

Quadratic functions (degree 2)
written as $f(x) = ax^2 + bx + c$
($a \neq 0$)
are also called parabolas.