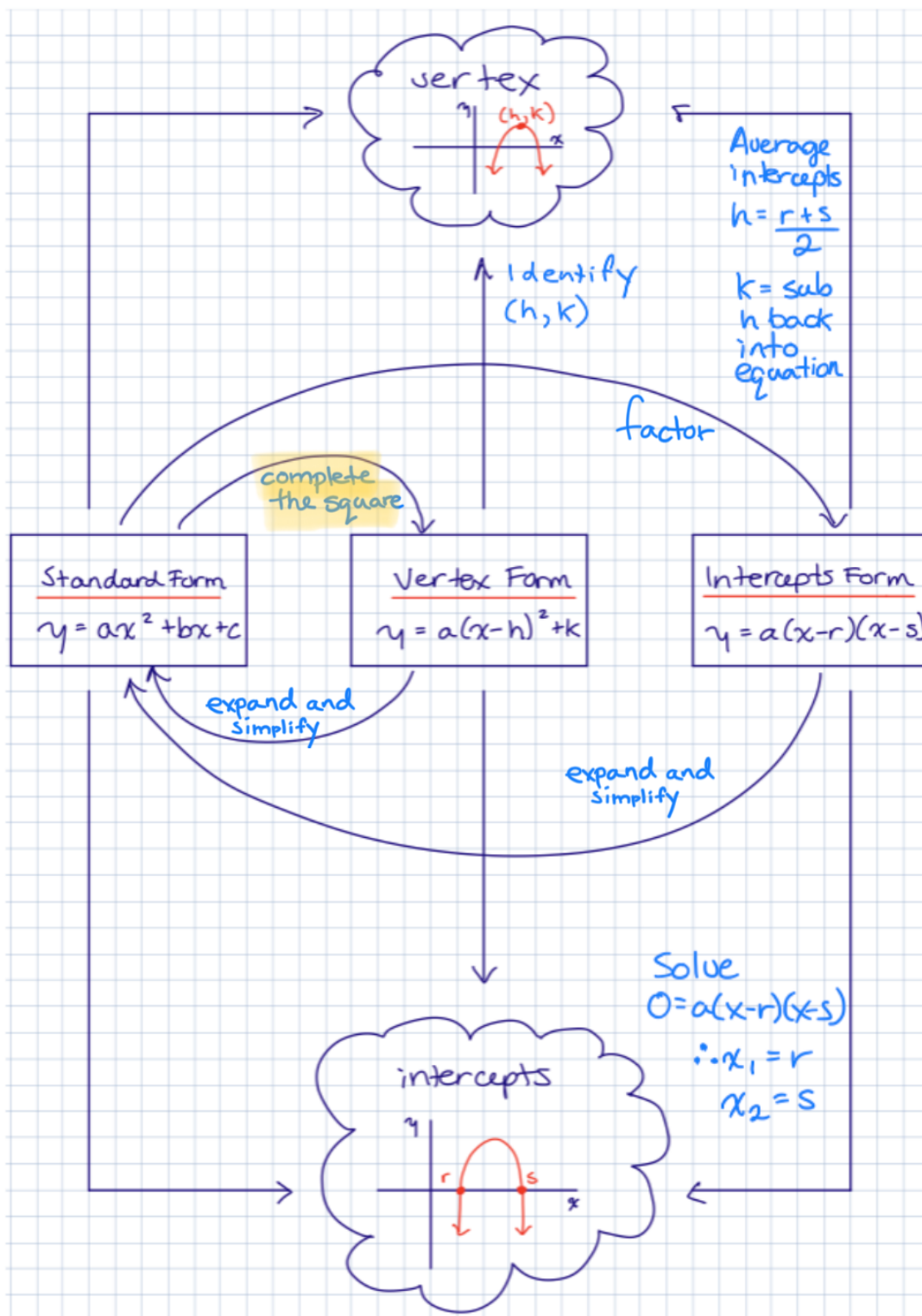


Standard Form to Vertex Form – Day 2

Quadratic Relations Concept Map



Recall When given a quadratic in the form $y = ax^2 + bx + c$ we complete the square to express it in the form $y = a(x - h)^2 + k$. This form is easier to _____ and _____.

Example 1 a) Write the following equation in the form $y = a(x - h)^2 + k$.

$$y = x^2 - 8x + 19$$

$y =$ Add and subtract the square of half the co-efficient of x

Group the perfect square trinomial.

$y =$ Factor the perfect square trinomial (write as square of a binomial).

$y =$ Simplify outside the brackets.

b) Analyze the relation.

opens:

stretch/comp:

vertex:

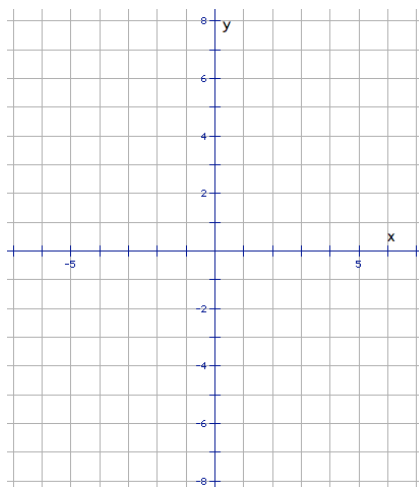
eq'n of axis of sym.:

values x may take: \mathbb{R}

values y may take:

max/min val.:

c) Graph the relation:



Example 2 a) Write the following equation in the form $y = a(x - h)^2 + k$.

$$y = 2x^2 + 4x - 1$$

- $y =$ Group the first two terms and factor out the co-efficient of x^2
- $y =$ Inside the brackets, add and subtract the square of half the co-efficient of x
- $y =$ Factor the perfect square trinomial (first three terms inside brackets).
- $y =$ Distribute the number outside the large brackets to terms inside large brackets.
- $y =$ Simplify outside the brackets.

b) Analyze the relation.

opens:

stretch/comp:

vertex:

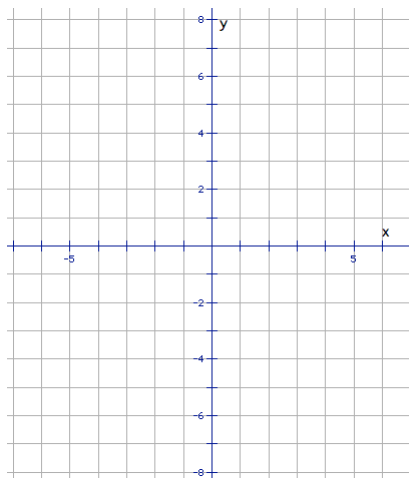
eq'n of axis of sym.:

values x may take: \mathbb{R}

values y may take:

max/min val.:

c) Graph the relation:



Example 3 a) Write the following equation in the form $y = a(x - h)^2 + k$.

$$y = -3x^2 - 12x - 7$$

b) Analyze the relation.

opens:

stretch/comp:

vertex:

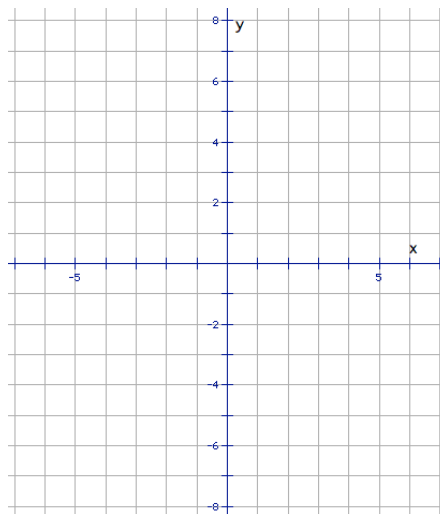
eq'n of axis of sym.:

values x may take: \mathbb{R}

values y may take:

max/min val.:

c) Graph the relation:



Opportunity to Learn

Complete all questions in the provided handout that accompanies this lesson.