

# Learning Goals

- Solve problems arising from a realistic situation represented by a graph or an equation of a quadratic relation.
- Make connections between the factored form of a quadratic relation and the key features of a parabola.



What are the key features of a parabola ? - Zeros (X-Intercepts) - Axis of Symmetry - Verter X coordinate of vertex - N-Int. A min or max value X-Int.  $-\gamma$ -Int. opensup opensolown.

#### Minds on...

How does factoring help us find the key features of a parabola ?

Factored Form 7 Zeros J. A.O.S. J Max. or Min. Value



# **Big Ideas**

- The vertex is the maximum or minimum point of a parabola
- The x-intercepts are the zeros, break even points, ... of a parabola
- It is easier to factor an algebraic expression if you first factor out the greatest common factor.



### Example #1

For each quadratic relation given below. Express the relation in factored form, determine the zeros, determine the coordinates of the vertex, and sketch the graph of the relation.

• 
$$y = x^{2}+2x-8$$
  
 $y = (x+4)(x-2)$   
 $\chi = (-1+4)(-1-2)$   
 $\chi = -4$   
 $\chi = 2$   
 $\chi = -4$   
 $\chi = -1$   
 $\chi = -1$   
 $\chi = -1$ 







h = -5(t-4)(t+2)h = -5(1-4)(1+2)h = -5(-3(3))h = 45 Vertex (1,45) Max height 15 45m Ball in air for 45.

#### Example #3

• Pg. 224 #14



## Consolidation

- Identify the type of algebraic expression and the factoring strategies you would use to factor the expression. Factor fully.
- Determine the zeros and the vertex.
- State solution to the given problem.



### Reinforcement

- Page 216 #11,13
- Page 224 #14 Quiz this Friday (Factoring) all types

Unit Test – Next Wednesday

