

Chapter 4 - Quadratic Relations

① Determine if a relation is quadratic
 given → table, equation, graph

ex.

x	y
-1	0
0	1
1	4
2	9

 $\begin{matrix} \rightarrow -1 \\ \rightarrow 2 \\ \rightarrow 2 \end{matrix}$

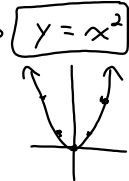
 $\begin{matrix} \rightarrow 2 \\ \rightarrow 2 \end{matrix}$

 $\begin{matrix} \rightarrow 2 \\ \rightarrow 2 \end{matrix}$

Quad. because second diff. are the same.

② Graph
 → given vertex form or factored form.

ex. vertex form → $y = x^2$



$y = -2(x+4)^2 - 3$

ex. factored $y = -2(2x+3)(x-1)$

→ find x-int.

$2x+3=0$
 $2x=-3$
 $x=-\frac{3}{2}$

AND $x-1=0$
 $x=1$

x-value of vertex

$\frac{-\frac{3}{2} + 1}{2}$

$\frac{-1.5 + 1}{2}$

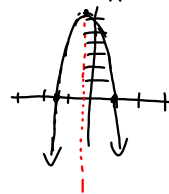
$= \frac{-.5}{2}$

$x = -0.25$

y-value

$y = -2(2x+3)(x-1)$

$= -2(2(-0.25)+3)(-0.25-1)$
 $= 6.25$



③ Describe transformations

④ Label or find significant points or aspects of quadratics (charts)



ex. $\{x \in \mathbb{R}\} \{y \in \mathbb{R} \mid y \geq 3\}$

Domain, Range
 axis of sym $x = ?$

vertex (x, y)

opening
 stretch/comp.

max/min
 $y = ?$

⑤ WORD Problems

→ equation } graph and
 → data } use graph

$y = 3(x)(2x+4)$

$x=0$

$2x+4=0$

$2x=-4$

$x=-\frac{4}{2}$

$x=-2$