First Name: _____   Last Name: _____

L12 – fQ – 3.1 Vertex form

Use the following information to answer Q1-4:

> An equation of a quadratic, in Vertex Form, is $f(x) = 2\left(x - \frac{5}{2}\right)^2 - \frac{9}{2}$

Q1: The equation, written in Standard Form, is $f(x) = ax^2 - bcx + d$, where **a, b, c,** and **d** are ___, ___, ___, and ___.

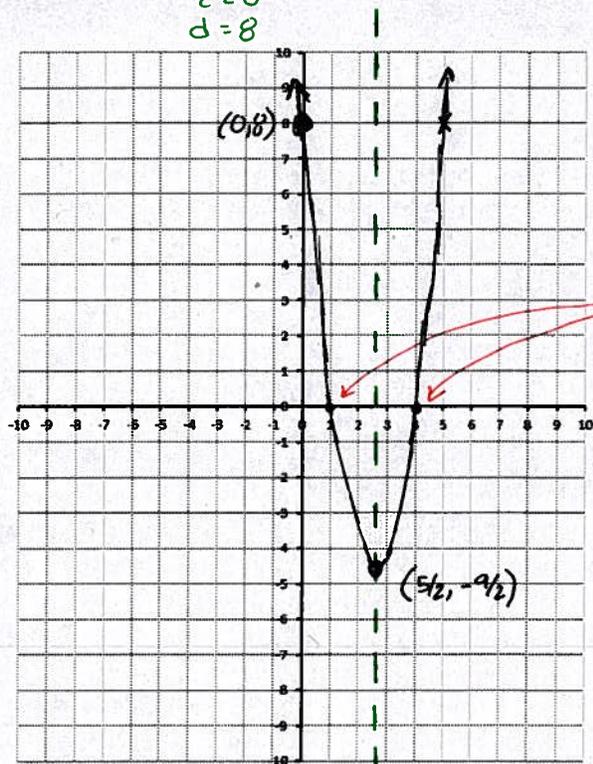*(Record your **four-digit** answer in the Numerical Response boxes below)*

| 2 | 1 | 0 | 8 |

$$f(x) = 2\left(x - \tfrac{5}{2}\right)\left(x - \tfrac{5}{2}\right) - \tfrac{9}{2}$$
$$= 2\left(x^2 - 5x + \tfrac{25}{4}\right) - \tfrac{9}{2}$$
$$= 2x^2 - 10x + \tfrac{25}{2} - \tfrac{9}{2}$$
$$= 2x^2 - 10x + \tfrac{16}{2}$$
$$= 2x^2 - 10x + 8$$
$$ax^2 - bcx + d$$

$a = 2$
$b = 1$
$c = 0$
$d = 8$

Q2: Graph the equation, clearly showing the following items *(1/2 mark each; 2 marks)*

- Axis of Symmetry $x = \frac{5}{2}$
- Vertex $\left(\frac{5}{2}, -\frac{9}{2}\right)$
- Y-Intercept $y = 8$
- Direction of opening Up (a is positive)

(0,8)

Exact x-int
(zeroes)
were not
asked for, so
don't worry
about these.

$\left(\frac{5}{2}, -\frac{9}{2}\right)$

$x = \frac{5}{2}$ or 2.5

MARKING

Beginning	0.0 – 1.0
Progressing	1.5
Competent	2.0 – 2.5
Exemplary	3.0