Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Unit 2 Review – Quadratics**

**Helpful Information:**

**Types of Factoring:** **Completing the Square: Nature of Roots:**

* GCF determined by
* Difference of Two Squares discriminant
* Trinomial (regular & grouping) $b²-4ac$

**Quadratic Formula:** $x=\frac{-b\pm \sqrt{b^{2}-4ac}}{2a}$

**Standard Form:** $y=ax²+bx+c$

**Vertex Form:** $y=\frac{1}{4p}\left(x-h\right)²+k$

where, p = distance from focus to vertex and vertex to directrix, and (h,k) represents the vertex

**Level I Practice:**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 |  | 2 |  |
| 3 |  | 4 |  |

1. Which graph has the following characteristics?

• three real zeros

• 

• 

1. The zeros for  are

|  |  |
| --- | --- |
| 1) |  |
| 2) |  |
| 3) |  |
| 4) |  |

1. The directrix of the parabola  has the equation . Find the coordinates of the focus of the parabola.
2. Factored completely,  is equivalent to

|  |  |
| --- | --- |
| 1) |  |
| 2) |  |
| 3) |  |
| 4) |  |

1. The solution to the equation  is

|  |  |
| --- | --- |
| 1) |  |
| 2) |  |
| 3) |  |
| 4) |  |

**Level II Practice:**

1. A solution of the equation  is

|  |  |
| --- | --- |
| 1) |  |
| 2) |  |
| 3) |  |
| 4) |  |

1. There was a study done on oxygen consumption of snails as a function of pH, and the result was a degree 4 polynomial function whose graph is shown below.



Which statement about this function is *incorrect*?

|  |  |
| --- | --- |
| 1) | The degree of the polynomial is even. |
| 2) | There is a positive leading coefficient. |
| 3) | At two pH values, there is a relative maximum value. |
| 4) | There are two intervals where the function is decreasing. |

1. On the grid below, sketch a cubic polynomial whose zeros are 1, 3, and -2.
2. 

**Level III Practice:**

1. The equation  is equivalent to

|  |  |
| --- | --- |
| 1) |  |
| 2) |  |
| 3) |  |
| 4) |  |

1. Algebraically determine the values of *h* and *k* to correctly complete the identity stated below.

