Create a table of values for the following 3 relations (decimals are OK for the third). Calculate the first and second differences for each relation. Then, graph them on the provided grid.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Relation: | | | | Graph: |
|  |  | 1st Diff. | 2nd Diff. |
| -3 |  |  | |
| -2 |  |
| -1 |  |
| 0 |  |
| 1 |  |
| 2 |  |
| 3 |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Relation: | | | | Graph: |
|  |  | 1st Diff. | 2nd Diff. |
| -3 |  |  | |
| -2 |  |
| -1 |  |
| 0 |  |
| 1 |  |
| 2 |  |
| 3 |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Relation: | | | | Graph: |
|  |  | 1st Diff. | 2nd Diff. |
| -3 |  |  | |
| -2 |  |
| -1 |  |
| 0 |  |
| 1 |  |
| 2 |  |
| 3 |  |

2) Describe the 4 transformations from the basic parabola that the following quadratic relations undergoes:

3) Graph the following two quadratic relations:

a) b)

4) Find equation (in vertex form) of a parabola with a vertex of (5, 4), with a y-intercept of 16.5.

5) Find the equation (in factored form) of a parabola with x-intercepts of 5 and -1, with a maximum value of 10.