## Provide the information for the graph.



Coordinates of the vertex: ( $\quad, \quad, \quad$ )
Equation of the axis of symmetry: $\qquad$ $y$-intercept(s): $\qquad$
Minimum or maximum value: $\qquad$ $x$-intercept(s): $\qquad$
a) Complete the table. The first one has been done for you.

| $x$ | $y$ | First Differences | Second Differences |
| :---: | :---: | :---: | :---: |
| -3 | 18 |  |  |
| -2 | 11 | $11-18=-7$ |  |
| -1 | 6 | $6-11=-5$ | $-5-(-7)=$ |
| 0 | 3 |  |  |
| 1 | 2 |  |  |
| 2 | 3 |  |  |
| 3 | 6 |  |  |

b) This data forms a $\qquad$ relation because $\qquad$ .
c) Based on the values you determined for the table, what would the shape of this graph be? Explain why.
$\qquad$
$\qquad$
6. This graph shows a quadratic relation.
a) Make a table of values for the graph.

| timo $(\mathrm{s})$ | height $(\mathrm{m})$ |
| :---: | :---: |
| 0 |  |
| 3 |  |
| 5 |  |
| 6 |  |
| 8 |  |
| 10 |  |
| 13 |  |
| 15 |  |
| 20 |  |



