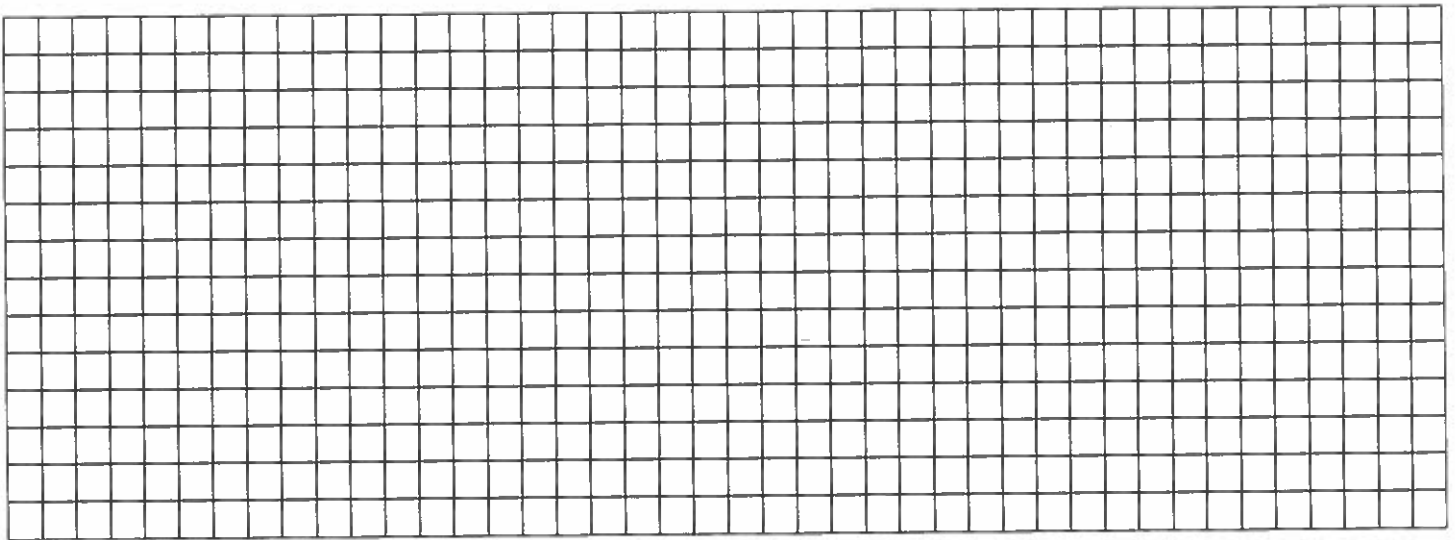


- [4] 1. Describe in as much detail as possible what transformations of  $y = x^2$  took place if the final equation is  $y = -3(x + 1)^2 + 4$ ? (You can use abbreviations such as VE, VC, HT, VT, R for reflection).

- [4] 2. Graph  $y = 0.5(x - 3)^2 + 1$ . Include clearly labeled x and y axis.



- [6] 3. A) Write the mapping notation for the following transformations (one notation for all 4 transformations): Vertical compression by one third, reflection in the x-axis, vertical translation down by 2 units and horizontal translation left by 6 units.

B) What are the coordinates of the point  $(-3, 9)$  that was on the original parabola before all the above transformations took place?

[4] 4. Write mapping notation for  $y = -5(x + 3)^2 + 4$

[6] 5.A) Identify which equation is in vertex form and which equation is in standard form.

$$y = -3(x + 1)^2 + 4$$

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$$y = 3x^2 - 18x + 24$$

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B) Change the standard form equation into vertex form and the vertex form into standard form. Show your work please.

[2] 6. Will a parabola reflected in the x-axis have a maximum, minimum or neither?