



Name: \_\_\_\_\_ Date : \_\_\_\_\_

IM 3 Quiz 2.1 V2 - Transforming Function & Quadratics  
Teacher: Mr. Santowski and Mr. Smith

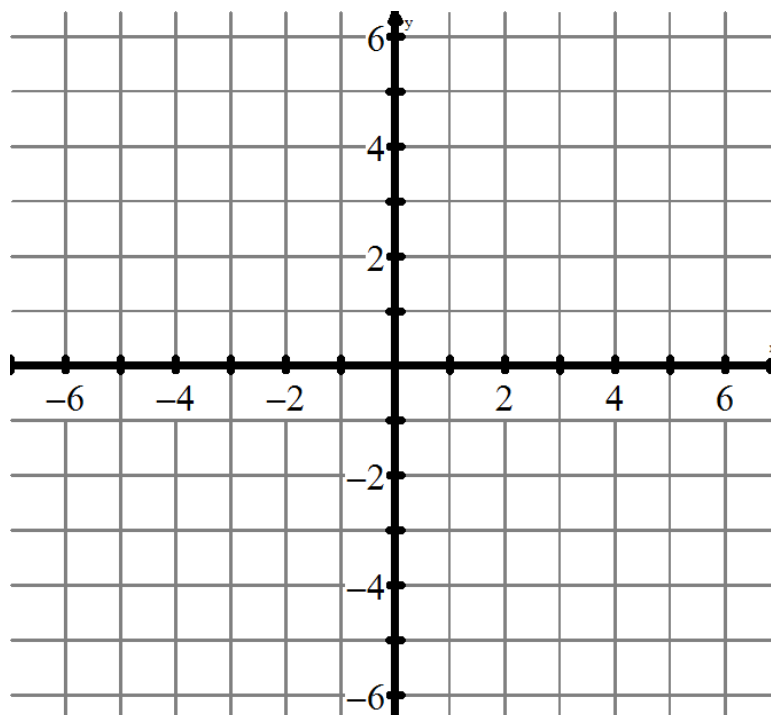
Score: \_\_\_\_\_

1. You are given the equation of the parabola  $f(x) = -2(x - 3)^2 + 4$ . **(12 marks)**

- a. State the transformations that have been applied to  $y = x^2$ . (3)
- b. Determine the new locations of the original points  $(-2,4)$  and  $(1,1)$ . (3)

- c. State the equation of the axis of symmetry of this parabola. (1)
- d. State the coordinates of the vertex. (1)

- e. Sketch the graph of  $f(x)$ , carefully labeling the vertex and the new locations of the points from your work in Qb. (4)



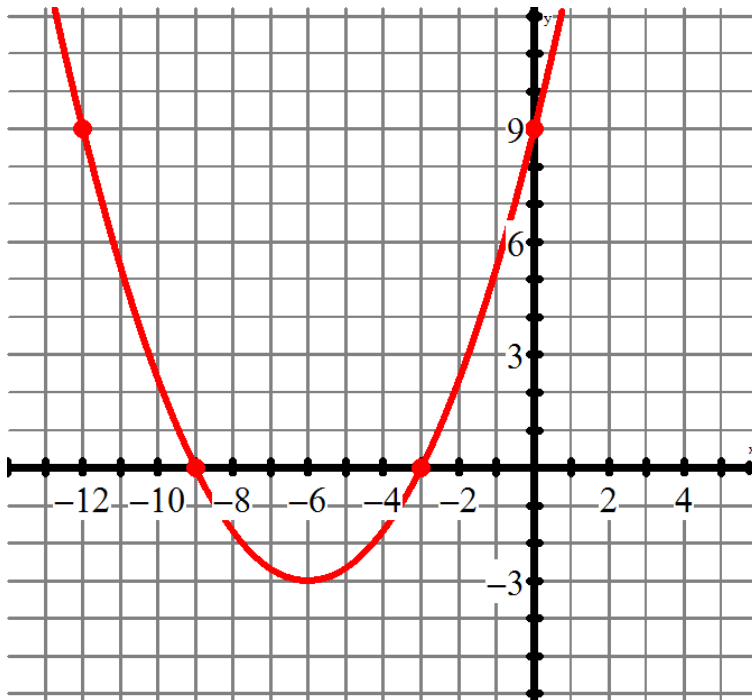
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2. From the diagram of the parabola, determine its equation. Show the key steps of your solution.

**(4 marks)**



3. Write the equation of a parabola that has been vertically compressed by a factor of  $\frac{1}{3}$  and then translated 3 units to the left as well as down by 5 units.

**(3 marks)**

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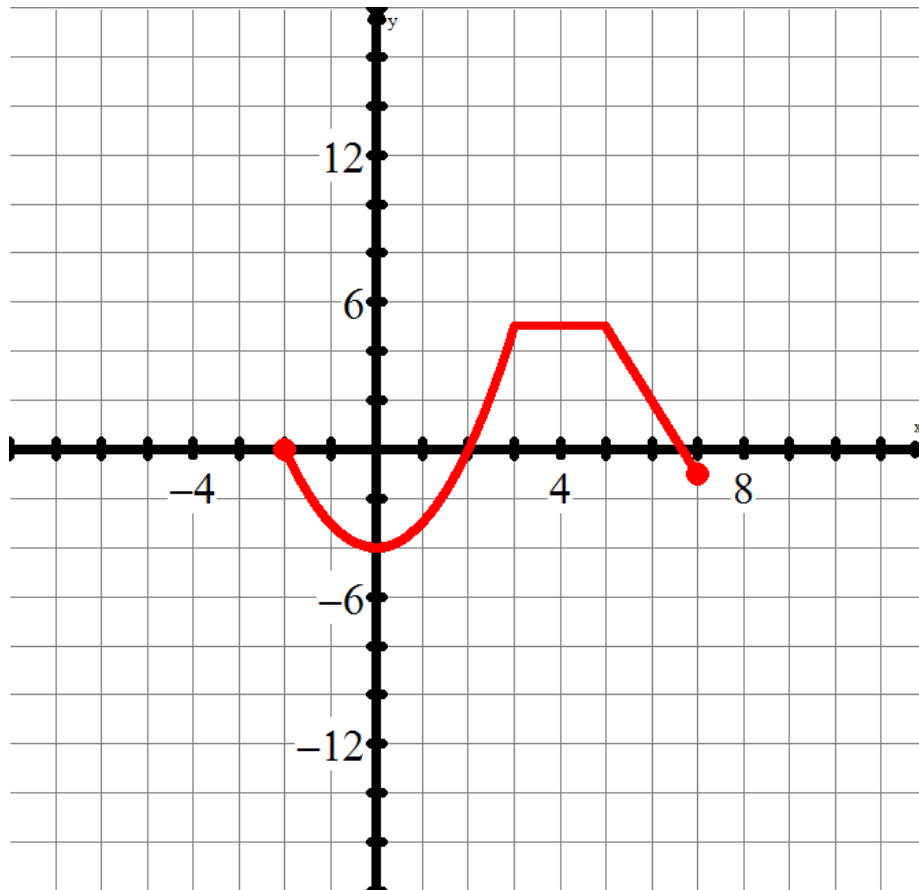
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4. The piecewise function shown in the diagram below is to be transformed according to the equation  $y = 3f(x + 4) + 2$ .

**(8 marks)**

- a. List the transformations that are to be applied to the original function. (3)
- b. Correctly apply the transformations and draw a graph of the new function. Show key steps of your analysis. (5)



AP/HL Extension: Write the equation of this piecewise function and then sketch a diagram of  $y = |3f(x + 4)| + 2$

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5. Sketch a graph of the parent function,  $y = \sqrt{x}$ . Then, sketch a graph of  $y = -\sqrt{x+4} - 2$ . Make sure that at least 3 points are clearly identified and labelled in the graph.

**(4 marks)**

