Math-1003b Exam #4

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This exam is open book and notes; however, you are not allowed to work or consult with anyone - any perceived similarity in work will result in a score of zero for both parties. Show all work; there is no credit for guessed answers. Turn in the exam on this paper only. Unstapled exams or exams done on other paper will not be accepted.

Consider the following general form for a parabola:

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

1). (10 points) Is the parabola open up or down? Explain your choice.

2). (10 points) Calculate the discriminant and indicate with of the four cases applies to this parabola based on the disciminant's value.

3). (20 points) Convert the general form to standard form by completing the square. No other method will be accepted.

4). (10 points) What are the coordinates of the vertex?

5). (10 points) What are the y-intercepts (if any)?

6). (20 points) Use the standard form to determine the x-intercepts (if any). No other method will be accepted.

7). (10 points) Sketch the parabola. Remember to label all points for full credit.

8). (10 points) Use the x-intercepts to construct a factoring of the general form.