Name_____ No calculators. Present neatly. Score_____.

1) Brandon is on one side of a river that is 50 m wide and wants to reach a point 200 m downstream on the opposite side as quickly as possible by swimming diagonally across the river and then running the rest of the way. Find the best route if Brandon can swim at 1.5 m/s and run at 4 m/s.

2) Find the transition points, intervals of increase/decrease, concavity, and asymptotic behavior. Then sketch the graph, with this information indicated.

$$y = (2x^2 - 1)e^{-x^2}$$

3) Briefly describe Newton's Method. Include its definition and use.

<u>Your work:</u>

Name_____ No calculators. Present neatly. Score_____.

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2) Find the transition points, intervals of increase/decrease, concavity, and asymptotic behavior. Then sketch the graph, with this information indicated.

$$y = xe^{-x^2}$$

3) Briefly describe the Mean Value Theorem. Include its definition and use.

Your work