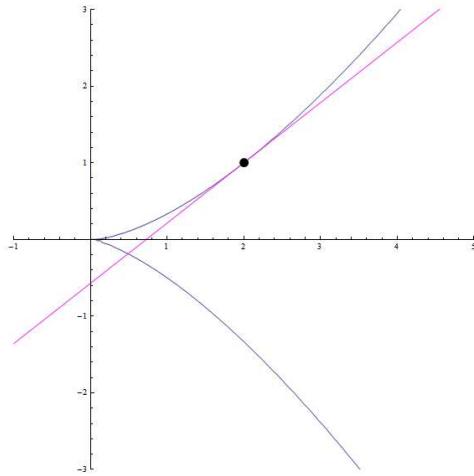Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Find an equation for the tangent line to the graph of $x^3 - xy = 6y^2$ at the point $(2, 1)$.

2. Julius and Cleopatra started driving from the same point. Julius is driving east with his Porsche at 100 mph whereas Cleopatra is driving south with her Honda motorbike at 50 mph. How fast is the distance between the two increasing when Julius is 12 miles away from the starting point and Cleopatra is 5 miles away from the same point?