# CPSC 314
# Assignment 4

due: Wednesday, Dec, 2nd 2014, in class

Answer the questions in the spaces provided on the question sheets. If you run out of room for an answer, continue on the back of the page.

Name: _____

Student Number: _____

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|---|---|
| Question 1 | / 18 |
| Question 2 | / 12 |
| TOTAL | / 30 |

1. (18 points) Ray Intersections with an Ellipse Given a ray originating at $C = (1, -1)$ with a direction $v = (1, 1)$, determine whether it will intersect an ellipsoid given by the implicit equation $\frac{x^2}{9} + \frac{y^2}{4} = 1$. If it does intersect the ellipse, find the coordinates of the intersection and normal to the ellipse at that point. Reminder: use parametric ray equation: $\mathbf{P}(t) = \mathbf{C} + t\mathbf{v}, t \geq 0$

2. (12 points) Light and Color Please answer the following questions regarding light and color. Explain your answer.

   - Is color a physical property of light?

   - Imagine you are in 19th century. How would you test how many different types of cones do people have?

   - Can modern displays show all the colors we can see? If yes, how? If no, why?

   - If we mix cyan ink with yellow ink in equal proportions, what color will we see? What color will get absorbed?