Math 2410-10/15 **Quiz #1** **January 23rd, 2017**

Note: Partial credit can not be awarded unless there is legible work to assess.

1. Consider the population model

$$\frac{dP}{dt} = 0.7P\left(1 - \frac{P}{115}\right),$$

where $P(t)$ is the population at time t.

(i) For what values of P is the population in equilibrium?

(ii) For what values of P is the population increasing?

(iii) For what values of P is the population decreasing?

2. Find the general solution of $\dfrac{dy}{dt} = \dfrac{t}{t^2y + y}$.