

Homework Set 3
Due Friday, September 7

I. Section 2.2: 2, 5, 11, 14, 18, 32.

II. Section 2.3: 5, 14, 23.

III. Use Theorem 2.4.1 to find the interval where the solution to each of the following must be continuous.

1. $y' + t^2y = \sin t$ with $y(0) = 7$.

2. $(t - 4)y' + (t + 1)^2y = \sin t$ with $y(0) = 7$.

3. $y' + t^2y = \tan t$ with $y(0) = 7$.

IV. Use Theorem 2.4.2 and sketch the regions of the ty -plane where the solution to each of the following must be unique.

1. $y' = \frac{at + by}{ct + dy}$.

2. $y' = \cot(\pi ty)$.