

Math 330 Reading Questions

Sections 2.1 and 2.2

_____ NAME

Answer the following questions as you read the textbook. This sheet will be collected at the beginning of class on Thursday. Your responses will be graded for completeness.

1. If $u(t)$ satisfies $\frac{du}{dt} = 0$, does it follow that $u(t)$ is constant? Explain why or state a counterexample.

2. What does *uniform transport* mean in the context of differential equations?

3. In the solution of the transport equation, what is the *characteristic variable*?

4. What is the *nonuniform transport equation*?

5. In the case of nonuniform transport, what information does a *characteristic curve* provide?

6. Can characteristic curves cross each other?