

MATH 253 WORKSHEET WEEK 11

This does **not** count for credit.

1. $y' = \sqrt{xy^2}$ is a

- a) linear, second order, nonseparable DE.
- b) linear, first order, separable DE.
- c) nonlinear, first order, separable DE.
- d) linear, second order, nonseparable DE.
- e) nonlinear, second order, nonseparable DE.

2. $y' = x^2 - y$ is a

- a) nonlinear, second order, nonseparable DE.
- b) linear, first order, nonseparable DE.
- c) linear, first order, separable DE.
- d) nonlinear, second order, nonseparable DE.
- e) nonlinear, first order, separable DE.

3. Solve the separable equation $y' = xy^3$ with initial condition $y(0) = 2$.

4. Solve the separable equation $y' = e^x y^5$ with initial condition $y(0) = -2$.

5. Solve the separable equation $y' = e^{x-y}$.

6. Solve the first order linear equation $xy' - y = x^2 \sin(x)$ with initial condition $y(\pi) = 0$.

7. Find the general solution of the first order linear equation $xy' + y = xe^x$.

8. Solve the equation $y'/x = y + 1$, $y(0) = 2$.