

# Differential Equations Practice Test #1 - Answers

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Name \_\_\_\_\_

1. particular solution is  $y^2 = x^2 + 16^2$

2. particular solution is  $y = 4x^2 - 3x$

3.  $y = \frac{x^3}{3} - \frac{3}{2}x^2 + C$

4.  $U = \frac{x^2}{2} + yx + C$

5. See Solutions

6. ~

(a) **Order 2** and **linear**

(b) **Order 2** and **linear**

(c) **Order 1** and **non-linear** (because  $y$  is squared and also because  $y$  appears in the denominator)

(d) **Order 1** and **non-linear**

(e) **Order 4** and **non-linear**

(f) **Order 4** and **linear**

7.  $I = -2e^{-5t} + 2$  is the unique particular solution.

8.  $y = \frac{1}{2}x + cx^{-1}$