

Name: \_\_\_\_\_ ID #: \_\_\_\_\_ Serial #: \_\_\_\_\_

---

1. Classify each of the following DEs as separable, linear, homogeneous, or Bernoulli. Do not solve.

(a)  $(y - \sin^2 x) + y' \sin x = 1$

(b)  $x^{2/3}y^{1/3}y' = 2x + 3y$

(c)  $(1 + x^2)y' + x^3e^{2y} = 0$

(d)  $3xyy' = 2y^2 + x^3y^3$

2. Verify that the DE  $ye^x dx + (2y + e^x) dy = 0$  is exact and then solve it.