Math 251 section 004 Quiz 2

Write your name and PSU ID here:

Write your answers here:

1. C 2. A 3. A

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1. Solve the exact equation

$$(2x + y)dx + (x - 2y)dy = 0$$

(a) $x^2 + xy = C$ (b) $x^2 + xy - 2y = C$
(c) $x^2 + xy - y^2 = C$ (d) $2xy + y^2 - x^2 = C$

2. A solution to the autonomous equation

$$y' = (y - 2)^2 \sin y$$

satisfies $y(-1) = 3$. Then as $t \to \infty$,

(a) $y \to \pi$ (b) $y \to 2$ (c) $y \to -\pi$ (d) $y \to 0$

3. For the second order linear differential equation

$$y'' + y' - 2y = 0$$

Which of the following statement is FALSE?

(a) Every solution goes to zero as $t \to \infty$.
(b) The Wronskian of any two solutions has the form Ce^{-t}.
(c) $y = 2e^t - e^{-2t}$ is a solution.
(d) There is a solution satisfying $y(1) = 0,\ y'(1) = 100$.