Name: _____

Directions: Show all work. No credit for answers without work.

1. [**3 points**] Solve for y explicitly: $\dfrac{dy}{dx} = \dfrac{\sin(2x)}{2y}$ with $y(0) = -1$.

2. [**3 points**] Solve for y: $\dfrac{dy}{dx} = \dfrac{y^3}{x^3 + y^2 x}$ with $y(1) = 1$. Implicit solutions are permitted.

3. Suppose that $y' = 4(1 + 2x)(1 + y^2)$ with $y(0) = 0$.

   (a) [**2 points**] Solve the IVP.

   (b) [**2 points**] Determine where the solution attains its minimum value. It may help to know that the interval of validity is approximately $(-1.30, 0.30)$.