Quiz 1

1. [5 points] Solve the ODE below and give an interval of validity for your solution:

$$\frac{dy}{dx} = xy + 2x + y + 2.$$

2. [5 points] Solve the initial value problem below and give an interval of validity for your solution:

$$y' + y^2 \cos(2x) = 0; \;\; y(0) = 1.$$

[**Hint:**] Recall that in order to find an interval of validity, you will usually have to have an *explicit* solution.

Quiz 1

1. [5 points] Solve the ODE below and give an interval of validity for your solution:

$$x\frac{dy}{dx} = 2(y - 4).$$

2. [5 points] Solve the initial value problem below and give an interval of validity for your solution:

$$y' = -\frac{2xy^2}{1 + x^2}; \ \ y(0) = \frac{1}{2}.$$

[**Hint:**] Recall that in order to find an interval of validity, you will usually have to have an *explicit* solution.