Solve the following problems. Try to solve each problem within the suggested time.

1. (3 minutes) Find the general solution of
   \[ 2 \frac{dy}{dt} + (\cos t) y = \cos t. \]

2. (7 minutes) Find the general solution of
   \[ y + \left( x + \frac{1}{1 + y^2} \right) \frac{dy}{dx} = -17 \cos x. \]