(20pts) NAME (printed neatly): __________________________

(10pts) Section Number (circle correct section): 502 (10:20 am) 503 (11:30 am) 506 (4:10 pm)

Quiz Grade: ___________

1. (20pts) On the given direction field draw the particular solution that goes through the point \((0, -20)\).
2. (10pts) What model does the above direction field represent?
   a. Logistic
   b. Cubic
   c. Sine
   d. **Quadratic**
   e. Logarithmic
   f. Linear
   g. Exponential
3. (20pts.) Find a particular solution to \( \frac{dy}{dx} = 4x \) such that if \( x = 3 \), then \( y = 10 \).

\[
\frac{dy}{dx} = 4x \\
dy = 4xdx \\
\int dy = \int 4xdx \\
y = 2x^2 + C \\
10 = 2(3^2) + C \\
C = -8 \\
\therefore y = 2x^2 - 8
\]
4. (20pts) Write a general solution to \( \frac{dy}{dx} = \frac{-2}{7x} \).

\[
\frac{dy}{dx} = \frac{-2}{7} \cdot x^{-1}
\]

\[
dy = \frac{-2}{7} \cdot x^{-1} \, dx
\]

\[
\int dy = \frac{-2}{7} \int x^{-1} \, dx
\]

\[
\therefore y = \frac{-2}{7} \ln|x| + C
\]