

Practice problems for Exam 1

1. Find the (implicit) solution to the separable equation

$$\frac{dy}{dx} = x^2y - x^2 + 2y - 2$$

3. A pan of water with an initial temperature of 70°F is placed in a freezer which is maintained at a constant temperature of 20°F. 10 minutes later, the water in the pan has reached a temperature of 50°F. How long does it take for the water to reach 35°F?

4. Solve the initial value problem

$$\begin{aligned}xy' - 2y &= x + 1 \\y(1) &= 3\end{aligned}$$

From the textbook:

p.23: 2,10,17,18

p.30: 8,12

p.38: 4,8,14

p.45: 6,10,11

p.54: 2,15,20,27

p.69: 2,11,12

p.422: 1,3,4,5 (but the exam problem won't be nearly as long...)