Introduction to Differential Equations

College of the Atlantic. January 5, 2025

1. Consider the equation:

$$x^3 - 4x^2 + 6x - 24 \;=\; 0\;. \tag{1}$$

Which, if any, are solutions of Eq. (1)?

(a) $x = 3$

(b) $x = 4$

(c) $x = \sqrt{6}i$

2. Consider the differential equation:

$$\frac{dy}{dt} \;=\; -3y + 6t + 11\;. \tag{2}$$

Which, if any, are solutions of Eq. (2)?

(a) $y(x) = e^{-3t}$

(b) $y(x) = e^{-3t} + 2t + 3$