A Mathematical Duel

Imagine you live in Italy in the 16th century. Then find a root of each of the following cubic equations:

1. (a) \( x^3 = 12x + 34 \)
   (b) \( x^3 = 6x + 6 \)
   (c) \( x^3 = 15x + 24 \)
   (d) \( x^3 = 3x + 10 \)
   (e) \( x^3 = 15x + 4 \)

2. (a) \( x^3 + 6x = 20 \)
   (b) \( x^3 + 3x = 2 \)
   (c) \( x^3 + 9x = 6 \)
   (d) \( x^3 + 12x = 1 \)
   (e) \( x^3 + x = 1 \)

3. (a) \( x^3 - x^2 = 0 \)
   (b) \( x^3 - 2x^2 - 2x - 3 = 0 \)
   (c) \( x^3 + x^2 = 2 \)
   (d) \( 2x^3 + 7x^2 - 10x + 3 = 0 \)
   (e) \( 3x^3 - 7x^2 + 8x - 2 = 0 \)