TEXTBOOK: Linear Algebra, Volume 1
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READ: Sections 4.1, 4.2.

PROBLEMS:

1. Determine if the following linear transformations are 1-1, onto, isomorphisms.

   (a) $T : \mathbf{R}^2 \to \mathbf{R}^3$ defined by $T([x_1, x_2]) = [2x_1 - x_2, x_1 + x_2, x_1 + 3x_2]$ (#14, section 2.3).
   (b) $T : \mathbf{R}^3 \to \mathbf{R}^2$ defined by $T([x_1, x_2, x_3]) = [2x_1+x_2+x_3, x_1+x_2+3x_3]$ (#16, section 2.3).
   (c) $T : \mathbf{R}^3 \to \mathbf{R}^2$ defined by $T([x_1, x_2, x_3]) = [x_1 + x_2 + x_3, x_1 + x_2, x_1]$ (#23, section 2.3).
   (d) $T : \mathbf{R}^3 \to \mathbf{R}^4$ defined by
   $T([x_1, x_2, x_3]) = [2x_1 + x_2 + x_3, x_1 + x_2 + x_3, x_1 + 2x_2, x_1 - x_2 + x_3]$.

2. Section 4.1: # 8, 18, 19, 24, 28, 30, 32, 36, 40, 56.

3. Section 4.2: # 10, 15 - 20, 21, 24.