

Do the following exercises from the text:

Chapter 2 (Section 2.3): 2, 12, 17(a)-(b), 23

Supplemental Problems:

1. Show that any positive integer $n \geq 12$ can be written as a linear combination $3u + 7v$ for nonnegative integers u, v .
2. Compute the gcd of $m = -231$ and $n = 150$ and express it as a linear combination of m and n .
3. Let $A = \begin{bmatrix} 2 & 1 \\ 0 & 2 \end{bmatrix}$. Using mathematical induction, show that $A^n = \begin{bmatrix} 2^n & n2^{n-1} \\ 0 & 2^n \end{bmatrix}$ for all positive integers n .
4. Prove that $2^n > n^3$ for every integer $n \geq 10$.