

Exam 1, part 1

MAT 255, FALL 2016

NAME:

Solve the following problems without using a calculator.

1. (15 points) Solve the system using Gaussian elimination. Describe the row operation you are using at each step. (Other methods of solving this problem will not be given credit.)

$$2x + y + z = 22$$

$$x - y = 11$$

$$y - z = -4$$

2. (10 points) Define the following matrices.

$$A = \begin{bmatrix} 4 \\ 2 \\ 6 \end{bmatrix} \quad B = \begin{bmatrix} -1 & 1 \\ 2 & 0 \end{bmatrix} \quad C = \begin{bmatrix} -6 & 3 & -3 \end{bmatrix} \quad D = \begin{bmatrix} -5 & 4 & 7 \\ -1 & 3 & 6 \end{bmatrix}$$

(a) Based on these definitions, describe each of the following products as defined or undefined.

i. DA

iv. DB

ii. DC

v. AC

iii. BD

vi. CA

(b) Choose ONE of the answers from part (a) that you said was defined. Calculate the matrix product.