

# M/CS 375 HW 11

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March 1, 2023

## Problem 8

If a system of 3000 equations in 3000 unknowns can be solved by Gaussian elimination in 5 seconds on a given computer, how many back substitutions of the same size can be done per second?

$$\frac{3000}{5} = 600 \text{ eliminations / second}$$

$$\frac{3000^2}{600} = \frac{x}{1}$$

$$x = 15000 \text{ back subs / second}$$

$$5 \cdot 15000 = 75000 \text{ back subs / 5 seconds}$$