M/CS 375 HW 11

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Problem 8

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

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

$$\begin{aligned} \frac{3000^2}{600} &= \frac{x}{1} \\ x &= 15000 \text{ back subs / second} \\ 5 \cdot 15000 &= 75000 \text{ back subs / 5 seconds} \end{aligned}$$