

# Multivar Quiz #7 Saaif Ahmed

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10:13 PM

Honor Pledge:

"I have neither given nor received any illegal aid on this exam"

-Saaif Ahmed 10/28/20

Johnny's dad is three times as old now as Johnny will be in 5 years. But in 15 years, Johnny's dad will be 5 years older than twice Johnny's age then. Use Gaussian elimination to find Johnny's and his father's ages.

Problem 1

$$y = 3(x + 5)$$

$$15 + y = 2(x + 15) + 5$$

$$-3x + y = 15$$

$$-2x + y = 20$$

$$\begin{bmatrix} -3 & 1 & 15 \\ -2 & 1 & 20 \end{bmatrix} \begin{pmatrix} A \\ B \end{pmatrix}$$

get the  $-2 \rightarrow 0$  ;  $B' = 1.5B - A$

$$\begin{bmatrix} -3 & 1 & 15 \\ 0 & 0.5 & 15 \end{bmatrix} \begin{pmatrix} A \\ B' \end{pmatrix}$$

get the  $1 \rightarrow 0$  ;  $A' = A - 2B'$

$$\begin{bmatrix} -3 & 0 & -15 \\ 0 & 0.5 & 15 \end{bmatrix}$$

divide out the rows

$$\begin{bmatrix} 1 & 0 & 5 \\ 0 & 1 & 30 \end{bmatrix}$$

**Answer:** Johnny is 5 and the dad is 30