Set-a:

1.

$$\begin{matrix} & & \\ 20 & 29 & 22 \\ 16 & 25 & 26 \\ 19 & 28 & 25 \end{matrix} \qquad \begin{matrix} 16 & 21 & 17 \\ 24 & 31 & 26 \\ 24 & 25 & 23 \end{matrix}$$

$$\begin{pmatrix} 2 & 3 & 4 \\ 4 & 3 & 2 \\ 2 & 4 & 3 \end{pmatrix}^2 = \begin{pmatrix} 24 & 31 & 26 \\ 24 & 29 & 28 \\ 26 & 30 & 25 \end{pmatrix}$$

$$\begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 1 \end{pmatrix}^2 = \begin{pmatrix} 14 & 20 & 14 \\ 20 & 29 & 22 \\ 14 & 22 & 26 \end{pmatrix}$$

$$2 \cdot \left(\begin{pmatrix} 2 & 3 & 4 \\ 4 & 3 & 2 \\ 2 & 4 & 3 \end{pmatrix} \cdot \begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 1 \end{pmatrix} \right) = \begin{pmatrix} 40 & 58 & 44 \\ 32 & 50 & 52 \\ 38 & 56 & 50 \end{pmatrix}$$

2.

$$7 \cdot \begin{pmatrix} 3 & -4 & 2 \\ -2 & 1 & 0 \\ -1 & -1 & 1 \end{pmatrix} + 3 \cdot \begin{pmatrix} 1 & 2 & -2 \\ 2 & 5 & -4 \\ 3 & 7 & -5 \end{pmatrix} = \begin{pmatrix} 24 & -22 & 8 \\ -8 & 22 & -12 \\ 2 & 14 & -8 \end{pmatrix}$$

Insert in A
Insert in B
Clean

▼ Details (Matrix addition)

The sum of two matrices is computed by adding corresponding elements of the matrices.

$$\begin{pmatrix} 21 & -28 & 14 \\ -14 & 7 & 0 \\ -7 & -7 & 7 \end{pmatrix} + \begin{pmatrix} 3 & 6 & -6 \\ 6 & 15 & -12 \\ 9 & 21 & -15 \end{pmatrix} = \begin{pmatrix} 21+3 & -28+6 & 14+(-6) \\ -14+6 & 7+15 & 0+(-12) \\ -7+9 & -7+21 & 7+(-15) \end{pmatrix} = \begin{pmatrix} 24 & -22 & 8 \\ -8 & 22 & -12 \\ 2 & 14 & -8 \end{pmatrix}$$

$$9 \cdot \begin{pmatrix} 1 & 2 & -2 \\ 2 & 5 & -4 \\ 3 & 7 & -5 \end{pmatrix} - 5 \cdot \begin{pmatrix} 3 & -4 & 2 \\ -2 & 1 & 0 \\ -1 & -1 & 1 \end{pmatrix} = \begin{pmatrix} -6 & 38 & -28 \\ 28 & 40 & -36 \\ 32 & 68 & -50 \end{pmatrix}$$

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▼ Details (Matrix addition)

The sum of two matrices is computed by adding corresponding elements of the matrices.

$$\begin{pmatrix} 9 & 18 & -18 \\ 18 & 45 & -36 \\ 27 & 63 & -45 \end{pmatrix} + \begin{pmatrix} -15 & 20 & -10 \\ 10 & -5 & 0 \\ 5 & 5 & -5 \end{pmatrix} = \begin{pmatrix} 9+(-15) & 18+20 & -18+(-10) \\ 18+10 & 45+(-5) & -36+0 \\ 27+5 & 63+5 & -45+(-5) \end{pmatrix} =$$

$$\begin{pmatrix} -6 & 38 & -28 \\ 28 & 40 & -36 \\ 32 & 68 & -50 \end{pmatrix}$$

Display decimals

$$7\cdot\begin{pmatrix}3&-4&2\\-2&1&0\\-1&-1&1\end{pmatrix}+3\cdot\begin{pmatrix}1&2&-2\\2&5&-4\\3&7&-5\end{pmatrix}+\left(9\cdot\begin{pmatrix}1&2&-2\\2&5&-4\\3&7&-5\end{pmatrix}-5\cdot\begin{pmatrix}3&-4&2\\-2&1&0\\-1&-1&1\end{pmatrix}\right)=$$

$$\begin{pmatrix}18&16&-20\\20&62&-48\\34&82&-58\end{pmatrix}$$

3.

$$2\cdot\begin{pmatrix}1&3&2\\2&0&3\\1&-1&1\end{pmatrix}^2+\begin{pmatrix}3&2&1\\2&3&2\\1&5&1\end{pmatrix}=\begin{pmatrix}21&4&27\\12&9&16\\1&9&1\end{pmatrix}$$

$$\begin{pmatrix}1&3&2\\2&0&3\\1&-1&1\end{pmatrix}^3=\begin{pmatrix}24&14&34\\18&8&26\\4&0&6\end{pmatrix}$$

▶ Details (Matrix multiplication)

$$\begin{pmatrix}1&3&2\\2&0&3\\1&-1&1\end{pmatrix}^3-2\cdot\begin{pmatrix}1&3&2\\2&0&3\\1&-1&1\end{pmatrix}^2-\begin{pmatrix}1&0&0\\0&1&0\\0&0&1\end{pmatrix}=\begin{pmatrix}5&12&8\\8&1&12\\4&-4&5\end{pmatrix}$$

▶ Details (Matrix multiplication)

4.

Display decimals

$$\begin{pmatrix}5&-7&1\\-1&2&-3\\4&-2&-16\end{pmatrix}^2-\begin{pmatrix}2&2&4\\1&-3&4\\1&2&-3\end{pmatrix}^2=\begin{pmatrix}26&-57&6\\-22&-2&61\\-43&10&245\end{pmatrix}$$

$$3\cdot\begin{pmatrix}5&-7&1\\-1&2&-3\\4&-2&-16\end{pmatrix}\cdot\begin{pmatrix}2&2&4\\1&-3&4\\1&2&-3\end{pmatrix}=\begin{pmatrix}12&99&-33\\-9&-42&39\\-30&-54&168\end{pmatrix}$$

$$3\cdot\begin{pmatrix}2&2&4\\1&-3&4\\1&2&-3\end{pmatrix}\cdot\begin{pmatrix}5&-7&1\\-1&2&-3\\4&-2&-16\end{pmatrix}=\begin{pmatrix}72&-54&-204\\72&-63&-162\\-27&9&129\end{pmatrix}$$

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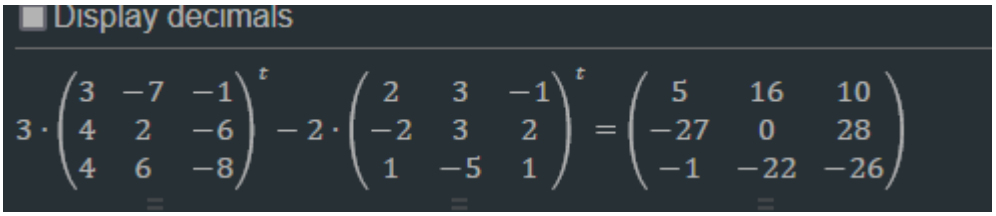
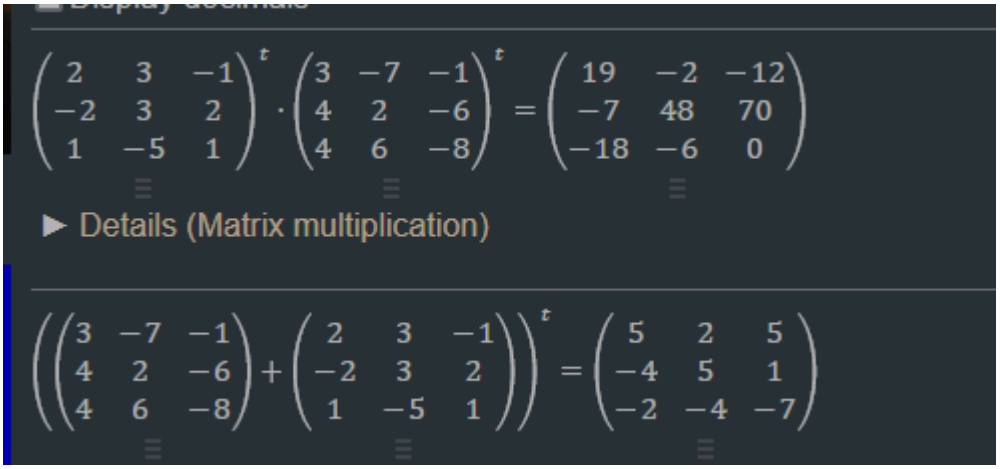

Display decimals
$3\cdot\begin{pmatrix}3&-7&-1\\4&2&-6\\4&6&-8\end{pmatrix}^t-2\cdot\begin{pmatrix}2&3&-1\\-2&3&2\\1&-5&1\end{pmatrix}^t=\begin{pmatrix}5&16&10\\-27&0&28\\-1&-22&-26\end{pmatrix}$


$\begin{pmatrix}2&3&-1\\-2&3&2\\1&-5&1\end{pmatrix}^t\cdot\begin{pmatrix}3&-7&-1\\4&2&-6\\4&6&-8\end{pmatrix}^t=\begin{pmatrix}19&-2&-12\\-7&48&70\\-18&-6&0\end{pmatrix}$
▶ Details (Matrix multiplication)
$\left(\begin{pmatrix}3&-7&-1\\4&2&-6\\4&6&-8\end{pmatrix}+\begin{pmatrix}2&3&-1\\-2&3&2\\1&-5&1\end{pmatrix}\right)^t=\begin{pmatrix}5&2&5\\-4&5&1\\-2&-4&-7\end{pmatrix}$