2. Which of the following are correct calculations for difference quotient of: $x\left(v\right)=8\;v^2+4\;v+4$ $x\left(v\right)=8\;v^2+4\;v+4$ $x\left(v+h\right)=8\;\left(h+v\right)^2+4\;\left(h+v\right)+4$

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\begin{split} x \, (\,v\,) &= 8 \,\,v^2 \,+\, 4 \,\,v \,+\, 4 \\ x \, (\,v\,+\,h\,) &= 8 \,\,(\,h\,+\,v\,)^{\,\,2} \,+\, 4 \,\,(\,h\,+\,v\,) \,\,+\, 4 \\ &= 8 \,\,h^2 \,+\, 16 \,\,h \,\,v \,+\, 4 \,\,h \,\,+\, 8 \,\,v^2 \,+\, 4 \,\,v \,+\, 4 \\ \frac{x \,(\,v\,+\,h\,) \,-\, x \,(\,v\,)}{h} &= \frac{\left(8 \,\,h^2 \,+\, 16 \,\,v \,\,h \,+\, 4 \,\,h \,+\, 8 \,\,v^2 \,+\, 4 \,\,v \,+\, 4\right) \,-\, \left(8 \,\,(\,v\,+\,1\,)^{\,\,2} \,+\, 4 \,\,(\,v\,+\,1\,) \,+\, 4\right)}{h} \\ &= \frac{8 \,\,h^2 \,+\, 16 \,\,v \,\,h \,+\, 4 \,\,h}{h} \\ &= \frac{h \,(\,8 \,\,h \,+\, 16 \,\,v \,+\, 4\,\,h}{h} \\ &= 8 \,\,h \,+\, 16 \,\,v \,+\, 4 \end{split}
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$$\begin{array}{l} x \, (\,v\,) \, = 8 \,\, v^2 \, + \, 4 \,\, v \, + \, 4 \\ x \, (\,v\,+h\,) \, = 8 \,\, (\,h\,+\,v\,)^{\,\,2} \, + \, 4 \,\, (\,h\,+\,v\,) \,\, + \, 4 \\ = 8 \,\, h^2 \, + \, 16 \,\, h \,\, v \, + \, 20 \,\, h \, + \, 8 \,\, v^2 \, + \, 20 \,\, v \, + \, 16 \\ \frac{x \, (\,v\,+h\,) \, - \, x \, (\,v\,)}{h} \, = \, \frac{\left(8 \, h^2 \, + \, 16 \, v \, h \, + \, 20 \, h \, + \, 8 \, v^2 \, + \, 20 \, v \, + \, 16\right) \, - \left(8 \, v^2 \, + \, 4 \, v \, + \, 4\right)}{h} \\ = \frac{8 \, h^2 \, + \, 16 \, v \, h \, + \, 4 \, h}{h} \\ = \frac{h \, (\,8 \, h \, + \, 16 \, v \, + \, 4)}{h} \\ = 8 \,\, h \, + \, 16 \,\, v \, + \, 4 \end{array}$$

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 \begin{array}{c} x \, (\,v\,) \, = 8 \,\, v^2 \, + \, 4 \,\, v \, + \, 4 \\ x \, (\,v + h\,) \, = 8 \,\, (\,h \, + \, v\,)^{\,\,2} \, + \, 4 \,\, (\,h \, + \, v\,) \,\, + \, 4 \\ = 8 \,\, h^2 \, + \, 16 \,\, h \,\, v \, + \, 4 \,\, h \,\, + \, 8 \,\, v^2 \, + \, 4 \,\, v \, + \, 4 \\ \frac{x \, (\,v + h\,) \, - x \, (\,v\,)}{h} \, = \, \frac{\left( 8 \, h^2 + 16 \, v \, h + 4 \, h + 8 \, v^2 + 4 \, v + 4 \right) - \left( 8 \, v^2 + 4 \, v + 4 \right)}{h} \\ = \frac{8 \, h^2 + 16 \, v \, h + 4 \, h}{h} \\ = \frac{h \, (8 \, h + 16 \, v + 4)}{h} \\ = 8 \,\, h \, + \, 16 \,\, v \, + \, 4 \end{array}
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$$\begin{array}{l} x \, (\,v\,) \, = \, 8 \,\, v^2 \, + \, 4 \,\, v \, + \, 4 \\ x \, (\,v + h\,) \, = \, 8 \,\, (\,h \, + \, v\,)^{\,\,2} \, + \, 4 \,\, (\,h \, + \, v\,) \,\, + \, 4 \\ = \, 8 \,\, h^2 \, + \, 16 \,\, h \,\, v \, - \, 12 \,\, h \, + \, 8 \,\, v^2 \, - \, 12 \,\, v \, + \, 8 \\ \frac{x \, (\,v + h\,) \, - x \, (\,v\,)}{h} \, = \, \frac{\left(8 \,\, h^2 + 16 \,\, v \,\, h + 36 \,\, h + 8 \,\, v^2 + 36 \,\, v + 44 \right) \, - \left(8 \,\, v^2 + 4 \,\, v + 4 \right)}{h} \\ = \, \frac{8 \,\, h^2 + 16 \,\, v \,\, h + 4 \,\, h}{h} \\ = \, \frac{h \, (\,8 \,\, h + 16 \,\, (\,v + 1\,) \, + 4\,)}{h} \\ = \, 8 \,\, h \, + \, 16 \,\, v \, + \, 4 \end{array}$$

Solution