3. Which of the following are correct calculations for difference quotient of:
$$j(p) = 3p^2 + 4p + 7$$

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$j(p) = 3p^2 + 4p + 7$

$j(p+h) = 3(h+p)^2 + 4(h+p) + 7$

$= 3h^2 + 6hp + 4h + 3p^2 + 4p + 7$

$\dfrac{j(p+h) - j(p)}{h} = \dfrac{\left(3h^2 + 6ph + 4h + 3p^2 + 4p + 7\right) - \left(3(p+1)^2 + 4(p+1) + 7\right)}{h}$

$= \dfrac{3h^2 + 6ph + 4h}{h}$

$= \dfrac{h(3h + 6p + 4)}{h}$

$= 3h + 6p + 4$

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$j(p) = 3p^2 + 4p + 7$

$j(p+h) = 3(h+p)^2 + 4(h+p) + 7$

$= 3h^2 + 6hp + 10h + 3p^2 + 10p + 14$

$\dfrac{j(p+h) - j(p)}{h} = \dfrac{\left(3h^2 + 6ph + 10h + 3p^2 + 10p + 14\right) - \left(3p^2 + 4p + 7\right)}{h}$

$= \dfrac{3h^2 + 6ph + 4h}{h}$

$= \dfrac{h(3h + 6p + 4)}{h}$

$= 3h + 6p + 4$

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$j(p) = 3p^2 + 4p + 7$

$j(p+h) = 3(h+p)^2 + 4(h+p) + 7$

$= 3h^2 + 6hp + 4h + 3p^2 + 4p + 7$

$\dfrac{j(p+h) - j(p)}{h} = \dfrac{\left(3h^2 + 6ph + 4h + 3p^2 + 4p + 7\right) - \left(3p^2 + 4p + 7\right)}{h}$

$= \dfrac{3h^2 + 6ph + 4h}{h}$

$= \dfrac{h(3h + 6p + 4)}{h}$

$= 3h + 6p + 4$

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$j(p) = 3p^2 + 4p + 7$

$j(p+h) = 3(h+p)^2 + 4(h+p) + 7$

$= 3h^2 + 6hp - 2h + 3p^2 - 2p + 6$

$\dfrac{j(p+h) - j(p)}{h} = \dfrac{\left(3h^2 + 6ph + 16h + 3p^2 + 16p + 27\right) - \left(3p^2 + 4p + 7\right)}{h}$

$= \dfrac{3h^2 + 6ph + 4h}{h}$

$= \dfrac{h(3h + 6(p+1) + 4)}{h}$

$= 3h + 6p + 4$

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**Solution**