2. Which of the following are correct calculations for difference quotient of:

$a(p) = 4p^2 + 7p + 1$

$a(p) = 4p^2 + 7p + 1$

$a(p+h) = 4(h+p)^2 + 7(h+p) + 1$

$= 4h^2 + 8hp + 7h + 4p^2 + 7p + 1$

$$\frac{a(p+h) - a(p)}{h} = \frac{\left(4h^2+8ph+7h+4p^2+7p+1\right) - \left(4(p+1)^2+7(p+1)+1\right)}{h}$$

$$= \frac{4h^2+8ph+7h}{h}$$

$$= \frac{h(4h+8p+7)}{h}$$

$= 4h + 8p + 7$

$a(p) = 4p^2 + 7p + 1$

$a(p+h) = 4(h+p)^2 + 7(h+p) + 1$

$= 4h^2 + 8hp + 15h + 4p^2 + 15p + 12$

$$\frac{a(p+h) - a(p)}{h} = \frac{\left(4h^2+8ph+15h+4p^2+15p+12\right) - \left(4p^2+7p+1\right)}{h}$$

$$= \frac{4h^2+8ph+7h}{h}$$

$$= \frac{h(4h+8p+7)}{h}$$

$= 4h + 8p + 7$

$a(p) = 4p^2 + 7p + 1$

$a(p+h) = 4(h+p)^2 + 7(h+p) + 1$

$= 4h^2 + 8hp + 7h + 4p^2 + 7p + 1$

$$\frac{a(p+h) - a(p)}{h} = \frac{\left(4h^2+8ph+7h+4p^2+7p+1\right) - \left(4p^2+7p+1\right)}{h}$$

$$= \frac{4h^2+8ph+7h}{h}$$

$$= \frac{h(4h+8p+7)}{h}$$

$= 4h + 8p + 7$

$a(p) = 4p^2 + 7p + 1$

$a(p+h) = 4(h+p)^2 + 7(h+p) + 1$

$= 4h^2 + 8hp - h + 4p^2 - p - 2$

$$\frac{a(p+h) - a(p)}{h} = \frac{\left(4h^2+8ph+23h+4p^2+23p+31\right) - \left(4p^2+7p+1\right)}{h}$$

$$= \frac{4h^2+8ph+7h}{h}$$

$$= \frac{h(4h+8(p+1)+7)}{h}$$

$= 4h + 8p + 7$

Solution