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

$$j(k) = 6k^2 + 9k + 4$$

$$j(k) = 6k^2 + 9k + 4$$

$$j(k+h) = 6(h+k)^2 + 9(h+k) + 4$$

$$= 6h^2 + 12hk + 9h + 6k^2 + 9k + 4$$

$$\frac{j(k+h) - j(k)}{h} = \frac{\left(6h^2+12kh+9h+6k^2+9k+4\right) - \left(6(k+1)^2+9(k+1)+4\right)}{h}$$

$$= \frac{6h^2+12kh+9h}{h}$$

$$= \frac{h(6h+12k+9)}{h}$$

$$= 6h + 12k + 9$$

$$j(k) = 6k^2 + 9k + 4$$

$$j(k+h) = 6(h+k)^2 + 9(h+k) + 4$$

$$= 6h^2 + 12hk + 21h + 6k^2 + 21k + 19$$

$$\frac{j(k+h) - j(k)}{h} = \frac{\left(6h^2+12kh+21h+6k^2+21k+19\right) - \left(6k^2+9k+4\right)}{h}$$

$$= \frac{6h^2+12kh+9h}{h}$$

$$= \frac{h(6h+12k+9)}{h}$$

$$= 6h + 12k + 9$$

$$j(k) = 6k^2 + 9k + 4$$

$$j(k+h) = 6(h+k)^2 + 9(h+k) + 4$$

$$= 6h^2 + 12hk + 9h + 6k^2 + 9k + 4$$

$$\frac{j(k+h) - j(k)}{h} = \frac{\left(6h^2+12kh+9h+6k^2+9k+4\right) - \left(6k^2+9k+4\right)}{h}$$

$$= \frac{6h^2+12kh+9h}{h}$$

$$= \frac{h(6h+12k+9)}{h}$$

$$= 6h + 12k + 9$$

$$j(k) = 6k^2 + 9k + 4$$

$$j(k+h) = 6(h+k)^2 + 9(h+k) + 4$$

$$= 6h^2 + 12hk - 3h + 6k^2 - 3k + 1$$

$$\frac{j(k+h) - j(k)}{h} = \frac{\left(6h^2+12kh+33h+6k^2+33k+46\right) - \left(6k^2+9k+4\right)}{h}$$

$$= \frac{6h^2+12kh+9h}{h}$$

$$= \frac{h(6h+12(k+1)+9)}{h}$$

$$= 6h + 12k + 9$$

Solution