

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

$$j(v) = 4v^2 + 8v + 7$$

$$j(v) = 4v^2 + 8v + 7$$

$$j(v+h) = 4(h+v)^2 + 8(h+v) + 7$$

$$= 4h^2 + 8hv + 8h + 4v^2 + 8v + 7$$

$$\frac{j(v+h) - j(v)}{h} = \frac{(4h^2 + 8vh + 8h + 4v^2 + 8v + 7) - (4(v+1)^2 + 8(v+1) + 7)}{h}$$

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

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

$$= 4h + 8v + 8$$

$$j(v) = 4v^2 + 8v + 7$$

$$j(v+h) = 4(h+v)^2 + 8(h+v) + 7$$

$$= 4h^2 + 8hv + 16h + 4v^2 + 16v + 19$$

$$\frac{j(v+h) - j(v)}{h} = \frac{(4h^2 + 8vh + 16h + 4v^2 + 16v + 19) - (4v^2 + 8v + 7)}{h}$$

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

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

$$= 4h + 8v + 8$$

$$j(v) = 4v^2 + 8v + 7$$

$$j(v+h) = 4(h+v)^2 + 8(h+v) + 7$$

$$= 4h^2 + 8hv + 8h + 4v^2 + 8v + 7$$

$$\frac{j(v+h) - j(v)}{h} = \frac{(4h^2 + 8vh + 8h + 4v^2 + 8v + 7) - (4v^2 + 8v + 7)}{h}$$

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

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

$$= 4h + 8v + 8$$

$$j(v) = 4v^2 + 8v + 7$$

$$j(v+h) = 4(h+v)^2 + 8(h+v) + 7$$

$$= 4h^2 + 8hv + 4v^2 + 3$$

$$\frac{j(v+h) - j(v)}{h} = \frac{(4h^2 + 8vh + 24h + 4v^2 + 24v + 39) - (4v^2 + 8v + 7)}{h}$$

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

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

$$= 4h + 8v + 8$$

Solution