

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

$$x(v) = 8v^2 + 4v + 4$$

$$x(v) = 8v^2 + 4v + 4$$

$$x(v+h) = 8(h+v)^2 + 4(h+v) + 4$$

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

$$\frac{x(v+h) - x(v)}{h} = \frac{(8h^2 + 16hv + 4h + 8v^2 + 4v + 4) - (8(v+1)^2 + 4(v+1) + 4)}{h}$$

$$= \frac{8h^2 + 16hv + 4h}{h}$$

$$= \frac{h(8h + 16v + 4)}{h}$$

$$= 8h + 16v + 4$$

$$x(v) = 8v^2 + 4v + 4$$

$$x(v+h) = 8(h+v)^2 + 4(h+v) + 4$$

$$= 8h^2 + 16hv + 20h + 8v^2 + 20v + 16$$

$$\frac{x(v+h) - x(v)}{h} = \frac{(8h^2 + 16hv + 20h + 8v^2 + 20v + 16) - (8v^2 + 4v + 4)}{h}$$

$$= \frac{8h^2 + 16hv + 4h}{h}$$

$$= \frac{h(8h + 16v + 4)}{h}$$

$$= 8h + 16v + 4$$

$$x(v) = 8v^2 + 4v + 4$$

$$x(v+h) = 8(h+v)^2 + 4(h+v) + 4$$

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

$$\frac{x(v+h) - x(v)}{h} = \frac{(8h^2 + 16hv + 4h + 8v^2 + 4v + 4) - (8v^2 + 4v + 4)}{h}$$

$$= \frac{8h^2 + 16hv + 4h}{h}$$

$$= \frac{h(8h + 16v + 4)}{h}$$

$$= 8h + 16v + 4$$

$$x(v) = 8v^2 + 4v + 4$$

$$x(v+h) = 8(h+v)^2 + 4(h+v) + 4$$

$$= 8h^2 + 16hv - 12h + 8v^2 - 12v + 8$$

$$\frac{x(v+h) - x(v)}{h} = \frac{(8h^2 + 16hv + 36h + 8v^2 + 36v + 44) - (8v^2 + 4v + 4)}{h}$$

$$= \frac{8h^2 + 16hv + 4h}{h}$$

$$= \frac{h(8h + 16(v+1) + 4)}{h}$$

$$= 8h + 16v + 4$$

**Solution**