

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

$$d(v) = 2v^2 + 8v + 1$$

$$d(v) = 2v^2 + 8v + 1$$

$$d(v+h) = 2(h+v)^2 + 8(h+v) + 1$$

$$= 2h^2 + 4hv + 8h + 2v^2 + 8v + 1$$

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

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

$$= \frac{h(2h + 4v + 8)}{h}$$

$$= 2h + 4v + 8$$

$$d(v) = 2v^2 + 8v + 1$$

$$d(v+h) = 2(h+v)^2 + 8(h+v) + 1$$

$$= 2h^2 + 4hv + 12h + 2v^2 + 12v + 11$$

$$\frac{d(v+h) - d(v)}{h} = \frac{(2h^2 + 4vh + 12h + 2v^2 + 12v + 11) - (2v^2 + 8v + 1)}{h}$$

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

$$= \frac{h(2h + 4v + 8)}{h}$$

$$= 2h + 4v + 8$$

$$d(v) = 2v^2 + 8v + 1$$

$$d(v+h) = 2(h+v)^2 + 8(h+v) + 1$$

$$= 2h^2 + 4hv + 8h + 2v^2 + 8v + 1$$

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

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

$$= \frac{h(2h + 4v + 8)}{h}$$

$$= 2h + 4v + 8$$

$$d(v) = 2v^2 + 8v + 1$$

$$d(v+h) = 2(h+v)^2 + 8(h+v) + 1$$

$$= 2h^2 + 4hv + 4h + 2v^2 + 4v - 5$$

$$\frac{d(v+h) - d(v)}{h} = \frac{(2h^2 + 4vh + 16h + 2v^2 + 16v + 25) - (2v^2 + 8v + 1)}{h}$$

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

$$= \frac{h(2h + 4(v+1) + 8)}{h}$$

$$= 2h + 4v + 8$$

**Solution**