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

$q(d) = 4d^2 + d + 8$

$q(d) = 4d^2 + d + 8$

$q(d+h) = 4(d+h)^2 + d + h + 8$

$= 4d^2 + 8dh + d + 4h^2 + h + 8$

$$\frac{q(d+h) - q(d)}{h} = \frac{\left(4d^2 + 8hd + d + 4h^2 + h + 8\right) - \left(4(d+1)^2 + d + 9\right)}{h}$$

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

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

$= 8d + 4h + 1$

$q(d) = 4d^2 + d + 8$

$q(d+h) = 4(d+h)^2 + d + h + 8$

$= 4d^2 + 8dh + 9d + 4h^2 + 9h + 13$

$$\frac{q(d+h) - q(d)}{h} = \frac{\left(4d^2 + 8hd + 9d + 4h^2 + 9h + 13\right) - \left(4d^2 + d + 8\right)}{h}$$

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

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

$= 8d + 4h + 1$

$q(d) = 4d^2 + d + 8$

$q(d+h) = 4(d+h)^2 + d + h + 8$

$= 4d^2 + 8dh + d + 4h^2 + h + 8$

$$\frac{q(d+h) - q(d)}{h} = \frac{\left(4d^2 + 8hd + d + 4h^2 + h + 8\right) - \left(4d^2 + d + 8\right)}{h}$$

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

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

$= 8d + 4h + 1$

$q(d) = 4d^2 + d + 8$

$q(d+h) = 4(d+h)^2 + d + h + 8$

$= 4d^2 + 8dh - 7d + 4h^2 - 7h + 11$

$$\frac{q(d+h) - q(d)}{h} = \frac{\left(4d^2 + 8hd + 17d + 4h^2 + 17h + 26\right) - \left(4d^2 + d + 8\right)}{h}$$

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

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

$= 8d + 4h + 1$

Solution