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

$g(r) = 4r^2 + 4r + 3$

$g(r) = 4r^2 + 4r + 3$

$g(r+h) = 4(h+r)^2 + 4(h+r) + 3$

$= 4h^2 + 8hr + 4h + 4r^2 + 4r + 3$

$$\frac{g(r+h)-g(r)}{h} = \frac{\left(4h^2+8rh+4h+4r^2+4r+3\right)-\left(4(r+1)^2+4(r+1)+3\right)}{h}$$

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

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

$= 4h + 8r + 4$

$g(r) = 4r^2 + 4r + 3$

$g(r+h) = 4(h+r)^2 + 4(h+r) + 3$

$= 4h^2 + 8hr + 12h + 4r^2 + 12r + 11$

$$\frac{g(r+h)-g(r)}{h} = \frac{\left(4h^2+8rh+12h+4r^2+12r+11\right)-\left(4r^2+4r+3\right)}{h}$$

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

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

$= 4h + 8r + 4$

$g(r) = 4r^2 + 4r + 3$

$g(r+h) = 4(h+r)^2 + 4(h+r) + 3$

$= 4h^2 + 8hr + 4h + 4r^2 + 4r + 3$

$$\frac{g(r+h)-g(r)}{h} = \frac{\left(4h^2+8rh+4h+4r^2+4r+3\right)-\left(4r^2+4r+3\right)}{h}$$

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

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

$= 4h + 8r + 4$

$g(r) = 4r^2 + 4r + 3$

$g(r+h) = 4(h+r)^2 + 4(h+r) + 3$

$= 4h^2 + 8hr - 4h + 4r^2 - 4r + 3$

$$\frac{g(r+h)-g(r)}{h} = \frac{\left(4h^2+8rh+20h+4r^2+20r+27\right)-\left(4r^2+4r+3\right)}{h}$$

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

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

$= 4h + 8r + 4$

Solution