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

$r(z) = 2z^2 + 4z + 6$

$r(z) = 2z^2 + 4z + 6$

$r(z+h) = 2(h+z)^2 + 4(h+z) + 6$

$= 2h^2 + 4hz + 4h + 2z^2 + 4z + 6$

$$\frac{r(z+h)-r(z)}{h} = \frac{\left(2h^2+4zh+4h+2z^2+4z+6\right)-\left(2(z+1)^2+4(z+1)+6\right)}{h}$$

$$= \frac{2h^2+4zh+4h}{h}$$

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

$= 2h + 4z + 4$

$r(z) = 2z^2 + 4z + 6$

$r(z+h) = 2(h+z)^2 + 4(h+z) + 6$

$= 2h^2 + 4hz + 8h + 2z^2 + 8z + 12$

$$\frac{r(z+h)-r(z)}{h} = \frac{\left(2h^2+4zh+8h+2z^2+8z+12\right)-\left(2z^2+4z+6\right)}{h}$$

$$= \frac{2h^2+4zh+4h}{h}$$

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

$= 2h + 4z + 4$

$r(z) = 2z^2 + 4z + 6$

$r(z+h) = 2(h+z)^2 + 4(h+z) + 6$

$= 2h^2 + 4hz + 4h + 2z^2 + 4z + 6$

$$\frac{r(z+h)-r(z)}{h} = \frac{\left(2h^2+4zh+4h+2z^2+4z+6\right)-\left(2z^2+4z+6\right)}{h}$$

$$= \frac{2h^2+4zh+4h}{h}$$

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

$= 2h + 4z + 4$

$r(z) = 2z^2 + 4z + 6$

$r(z+h) = 2(h+z)^2 + 4(h+z) + 6$

$= 2h^2 + 4hz + 2z^2 + 4$

$$\frac{r(z+h)-r(z)}{h} = \frac{\left(2h^2+4zh+12h+2z^2+12z+22\right)-\left(2z^2+4z+6\right)}{h}$$

$$= \frac{2h^2+4zh+4h}{h}$$

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

$= 2h + 4z + 4$

## Solution