

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

$$b(u) = 3u^2 + 2u + 3$$

$$b(u) = 3u^2 + 2u + 3$$

$$b(u+h) = 3(h+u)^2 + 2(h+u) + 3$$

$$= 3h^2 + 6hu + 2h + 3u^2 + 2u + 3$$

$$\frac{b(u+h) - b(u)}{h} = \frac{(3h^2 + 6uh + 2h + 3u^2 + 2u + 3) - (3(u+1)^2 + 2(u+1) + 3)}{h}$$

$$= \frac{3h^2 + 6uh + 2h}{h}$$

$$= \frac{h(3h + 6u + 2)}{h}$$

$$= 3h + 6u + 2$$

$$b(u) = 3u^2 + 2u + 3$$

$$b(u+h) = 3(h+u)^2 + 2(h+u) + 3$$

$$= 3h^2 + 6hu + 8h + 3u^2 + 8u + 8$$

$$\frac{b(u+h) - b(u)}{h} = \frac{(3h^2 + 6uh + 8h + 3u^2 + 8u + 8) - (3u^2 + 2u + 3)}{h}$$

$$= \frac{3h^2 + 6uh + 2h}{h}$$

$$= \frac{h(3h + 6u + 2)}{h}$$

$$= 3h + 6u + 2$$

$$b(u) = 3u^2 + 2u + 3$$

$$b(u+h) = 3(h+u)^2 + 2(h+u) + 3$$

$$= 3h^2 + 6hu + 2h + 3u^2 + 2u + 3$$

$$\frac{b(u+h) - b(u)}{h} = \frac{(3h^2 + 6uh + 2h + 3u^2 + 2u + 3) - (3u^2 + 2u + 3)}{h}$$

$$= \frac{3h^2 + 6uh + 2h}{h}$$

$$= \frac{h(3h + 6u + 2)}{h}$$

$$= 3h + 6u + 2$$

$$b(u) = 3u^2 + 2u + 3$$

$$b(u+h) = 3(h+u)^2 + 2(h+u) + 3$$

$$= 3h^2 + 6hu - 4h + 3u^2 - 4u + 4$$

$$\frac{b(u+h) - b(u)}{h} = \frac{(3h^2 + 6uh + 14h + 3u^2 + 14u + 19) - (3u^2 + 2u + 3)}{h}$$

$$= \frac{3h^2 + 6uh + 2h}{h}$$

$$= \frac{h(3h + 6(u+1) + 2)}{h}$$

$$= 3h + 6u + 2$$

Solution