$y (m) = 3 m^{2} + 5 m + 9$ $y (m) = 3 m^{2} + 5 m + 9$ $y (m+h) = 3 (h+m)^{2} + 5 (h+m) + 9$ $= 3 h^{2} + 6 h m + 5 h + 3 m^{2} + 5 m + 9$ $\frac{y (m+h) - y (m)}{h} = \frac{\left(3 h^{2} + 6 m h + 5 h + 3 m^{2} + 5 m + 9\right) - \left(3 (m+1)^{2} + 5 (m+1) + 9\right)}{h}$ $= \frac{3 h^{2} + 6 m h + 5 h}{h}$

difference quotient of:

 $-\frac{h(3h+6m+5)}{}$

=3h+6m+5

 $y(m) = 3 m^2 + 5 m + 9$

 $y(m+h) = 3(h+m)^2 + 5(h+m) + 9$

 $=3 h^2 + 6 h m + 5 h + 3 m^2 + 5 m + 9$

2. Which of the following are correct calculations for

```
\begin{split} y &(m) = 3 \ m^2 + 5 \ m + 9 \\ y &(m+h) = 3 \ (h+m)^2 + 5 \ (h+m) + 9 \\ &= 3 \ h^2 + 6 \ h \ m + 11 \ h + 3 \ m^2 + 11 \ m + 17 \\ &\frac{y &(m+h) - y &(m)}{h} = \frac{\left(3 \ h^2 + 6 \ m \ h + 11 \ h + 3 \ m^2 + 11 \ m + 17\right) - \left(3 \ m^2 + 5 \ m + 9\right)}{h} \\ &= \frac{3 \ h^2 + 6 \ m \ h + 5 \ h}{h} \\ &= \frac{h &(3 \ h + 6 \ m + 5)}{h} \\ &= 3 \ h + 6 \ m + 5 \end{split}
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\begin{split} \frac{y\,(m+h)\,-y\,(m)}{h} &= \frac{\left(3\,h^2 + 6\,m\,h + 5\,h + 3\,m^2 + 5\,m + 9\right) - \left(3\,m^2 + 5\,m + 9\right)}{h} \\ &= \frac{3\,h^2 + 6\,m\,h + 5\,h}{h} \\ &= \frac{h\,(3\,h + 6\,m + 5)}{h} \\ &= 3\,h\,+\,6\,m\,+\,5 \end{split}
= 3\,h\,+\,6\,m\,+\,5
y\,(m) &= 3\,m^2 + 5\,m\,+\,9
y\,(m+h) &= 3\,\left(h\,+\,m\right)^2 + 5\,\left(h\,+\,m\right) \,+\,9
= 3\,h^2 + 6\,h\,m\,-\,h\,+\,3\,m^2 - m\,+\,7
\frac{y\,(m+h)\,-y\,(m)}{h} &= \frac{\left(3\,h^2 + 6\,m\,h + 17\,h + 3\,m^2 + 17\,m + 31\right) - \left(3\,m^2 + 5\,m + 9\right)}{h} \end{split}
```

Solution

 $= \frac{3 h^2 + 6 m h + 5 h}{}$

 $= \frac{h(3 h+6 (m+1)+5)}{}$

=3h+6m+5