difference quotient of: $g(j) = j^{2} + 5 j + 2$ $g(j) = j^{2} + 5 j + 2$ $g(j+h) = (h+j)^{2} + 5 (h+j) + 2$ $= h^{2} + 2 h j + 5 h + j^{2} + 5 j + 2$ $\frac{g(j+h) - g(j)}{h} = \frac{\left(h^{2} + 2 j h + 5 h + j^{2} + 5 j + 2\right) - \left((j+1)^{2} + 5 (j+1) + 2\right)}{h}$ $= \frac{h^{2} + 2 j h + 5 h}{h}$

5. Which of the following are correct calculations for

```
\begin{split} g(j) &= j^2 + 5 \ j + 2 \\ g(j+h) &= (h+j)^2 + 5 \ (h+j) + 2 \\ &= h^2 + 2 \ h \ j + 7 \ h + j^2 + 7 \ j + 8 \\ \frac{g(j+h) - g(j)}{h} &= \frac{\left(h^2 + 2 \ j \ h + 7 \ h + j^2 + 7 \ j + 8\right) - \left(j^2 + 5 \ j + 2\right)}{h} \\ &= \frac{h^2 + 2 \ j \ h + 5 \ h}{h} \\ &= \frac{h(h+2 \ j + 5)}{h} \\ &= h + 2 \ j + 5 \end{split}
```

 $-\frac{h(h+2j+5)}{}$

= h + 2 j + 5

 $g(j) = j^2 + 5j + 2$

 $=\frac{h^2+2 j h+5 h}{h}$

 $= \frac{h(h+2j+5)}{}$

 $g(j+h) = (h+j)^2 + 5(h+j) + 2$

 $\frac{g(j+h)-g(j)}{h} = \frac{\left(h^2+2\ j\ h+5\ h+j^2+5\ j+2\right)-\left(j^2+5\ j+2\right)}{h}$

 $=h^2 + 2hj + 5h + j^2 + 5j + 2$

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g(j) = j^{2} + 5 j + 2
g(j+h) = (h+j)^{2} + 5 (h+j) + 2
= h^{2} + 2 h j + 3 h + j^{2} + 3 j - 2
\frac{g(j+h)-g(j)}{h} = \frac{(h^{2}+2 j h+9 h+j^{2}+9 j+16) - (j^{2}+5 j+2)}{h}
= \frac{h^{2}+2 j h+5 h}{h}
= \frac{h(h+2 (j+1)+5)}{h}
= h + 2 j + 5
```

Solution