9. (12 points) (a) Give the formula that defines the derivative of a function \( f \) at a point \( a \).

\[
 f'(a) = \lim_{h \to 0} \frac{f(a+h) - f(a)}{h}
\]

(b) Using the definition of the derivative, write the formula for \( f'(1) \) if \( f(x) = (4 + x)^3 \)

\[
 f'(1) = \lim_{h \to 0} \frac{(4 + 1 + h)^3 - (4 + 1)^3}{h}
\]

\[
 = \lim_{h \to 0} \frac{(5 + h)^3 - 5^3}{h}
\]

(c) Numerically approximate \( f'(1) \) correct to at least three decimal places. To receive full credit, you must show the calculations you used to justify your answer.

<table>
<thead>
<tr>
<th>( h )</th>
<th>( \frac{(5+h)^3 - 5^3}{h} )</th>
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<tr>
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<tr>
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To 3 decimal places, \( f'(1) \approx 9.047 \).