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Learning targets DF1 and DFa, version 2

Arapaho Glacier is a mountain glacier in Roosevelt National Forest, west of Boulder, CO. The following table[1] gives the surface area, $A(t)$, in square meters, of Arapaho Glacier in the year t.

t	1900	1960	1973	1999
$A(t)$	338,282	250,764	225,000	162,027

1. Compute an approximation for $A'(1960)$, and **include units** for this number.
   Write a sentence explaining what the number means about how the area of the glacier is changing.
   Don't say "per," and don't say "rate of change".

2. Compute an approximation for $A'(1999)$, and **include units** for this number.
   Do you think your approximation is too high or too low? Why?

3. How does $A'(1960)$ compare to $A'(1999)$? Is that good or bad?

[1] Haugen, B., Scambos, T., Pfeffer, T., & Anderson, R. (2010). Twentieth-century changes in the thickness and extent of Arapaho Glacier, Front Range, Colorado. *Arctic, Antarctic, and Alpine Research, 42*(2), 198-209.

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Learning target DF2, version 2

Suppose that $g(w) = 6w^3 - 2w^2 - 9w - 2$. Use the limit definition of the derivative to find $g'(w)$.

Algebra hint: $(w+h)^3 = w^3 + 3w^2h + 3wh^2 + h^3$.

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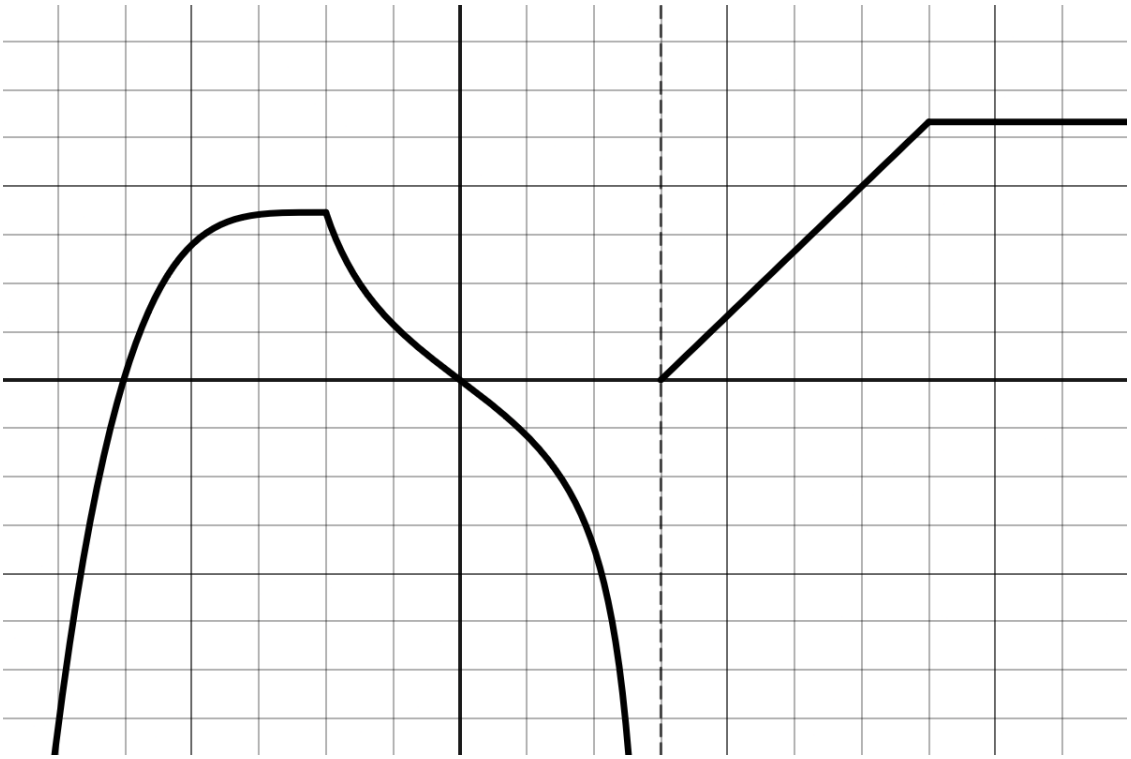
Learning target DFb, version 2

Here is the graph of some wacky function $h(t)$:



Sketch the graph of $h'(t)$ on the blank axes below.