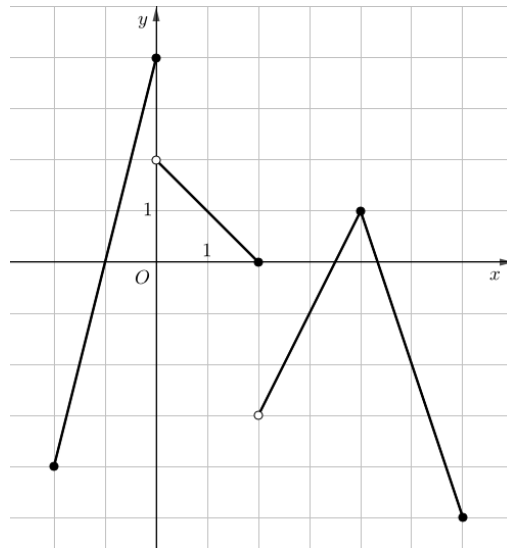


Activity: Using Multiple Representations

Instructions: In the box below are the numbers 0 – 9. Complete the following and cross off the number for each answer. If you complete all problems correctly, you will cross off each number exactly once!

0 1 2 3 4 5 6 7 8 9

x	$f(x)$	$f'(x)$
-2	-1	9
-1	0	-8
0	-2	7
1	-2	4
3	-1	3
5	0	0.5



Graph of h

Let g be the function defined by $g(x) = x^2 + e^{2x-4}$.

Let f be a differentiable function. The table above gives values of f and its derivative f' at selected values of x . Let h be the function whose graph, consisting of four line segments, is shown in the figure above.

(a) Let m be the function defined by $m(x) = \frac{f(x)}{3x}$. Find $m'(1)$.

(b) Find the slope of the tangent line to the graph of $g(x)$ at $x = 2$.

(c) Let p be the function defined by $p(x) = h(h(x))$. Find $p'(3)$.

(d) Let t be the function defined by $t(x) = g(2x)h(x) - 6x$. Find $t'(1)$.

(e) Let d be the function defined by $d(x) = g(x^2 + x) - f(x^2 - 1)$. Find $d'(1)$

(f) Let r be the function defined by $r(x) = f(g(x))$. Find $r'(2)$.

(g) $\lim_{x \rightarrow -1} \frac{f(2x) - x^3}{e^{2x+2} + x} =$

(h) Let s be the function defined by $s(x) = h(x) \cdot f(x)$. Find $s'(-1)$.

(i) $\lim_{x \rightarrow 5} \frac{6h(x) + 4x - 8}{10 - 2x} =$

(j) Let w be the function defined by $w(x) = h(x^2 - 5x + 9)$. Find $w'(1)$.