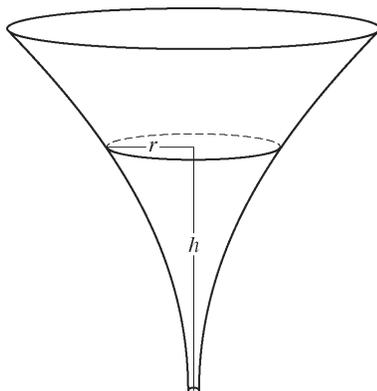


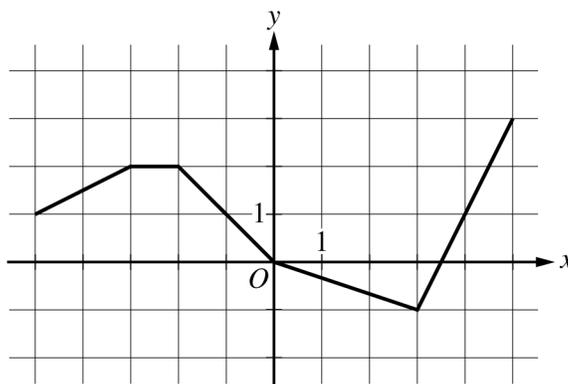
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5. The inside of a funnel of height 10 inches has circular cross sections, as shown in the figure above. At height h , the radius of the funnel is given by $r = \frac{1}{20}(3 + h^2)$, where $0 \leq h \leq 10$. The units of r and h are inches.
- (c) The funnel contains liquid that is draining from the bottom. At the instant when the height of the liquid is $h = 3$ inches, the radius of the surface of the liquid is decreasing at a rate of $\frac{1}{5}$ inch per second. At this instant, what is the rate of change of the height of the liquid with respect to time?

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x	$g(x)$	$g'(x)$
-5	10	-3
-4	5	-1
-3	2	4
-2	3	1
-1	1	-2
0	0	-3



Graph of h

6. Let f be the function defined by $f(x) = \cos(2x) + e^{\sin x}$.
- Let g be a differentiable function. The table above gives values of g and its derivative g' at selected values of x . Let h be the function whose graph, consisting of five line segments, is shown in the figure above.
- (a) Find the slope of the line tangent to the graph of f at $x = \pi$.
- (b) Let k be the function defined by $k(x) = h(f(x))$. Find $k'(\pi)$.
- (c) Let m be the function defined by $m(x) = g(-2x) \cdot h(x)$. Find $m'(2)$.