

$$(f+g)' = f' + g'$$

$$(fg)' = f'g + g'f$$

$$(f/g)' = (f'g - g'f) / g^2$$

$$(\text{const} \cdot f)' = \text{const} \cdot f'$$

Производная сложной ф-ии
 $(f(g))' = g' \cdot f'$

$$f' = [f(x_0+dx) - f(x_0)] / dx$$

$$g' = [g(x_0+dx) - g(x_0)] / dx$$

$$(f+g)' = [f(x_0+dx) + g(x_0+dx) - (f(x_0) + g(x_0))] / dx = [f(x_0+dx) - f(x_0)] / dx + [g(x_0+dx) - g(x_0)] / dx = f' + g'$$

$$(fg)' = [f(x_0+dx) \cdot g(x_0+dx) - f(x_0) \cdot g(x_0)] / dx = [f(x_0+dx) \cdot g(x_0+dx) + g(x_0+dx)f(x_0) - g(x_0+dx)f(x_0) - f(x_0) \cdot g(x_0)] / dx =$$

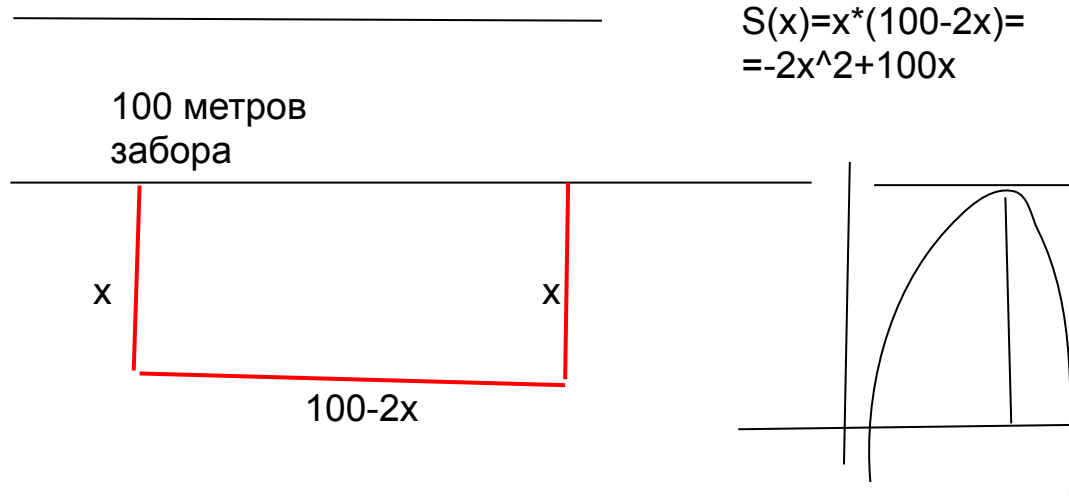
$$= [f(x_0+dx) - f(x_0)] \cdot g(x_0+dx) - f(x_0) \cdot [g(x_0+dx) - g(x_0)] / dx = f' \cdot g(x_0+dx) + f(x_0) \cdot g' = f' \cdot g(x_0) + f(x_0) \cdot g' = f' \cdot g + f \cdot g'$$

$$(f/g)' = [f(x_0+dx)/g(x_0+dx) - f(x_0)/g(x_0)] / dx = [f(x_0+dx)g(x_0) - f(x_0)g(x_0+dx)] / [g(x_0+dx)g(x_0)] / dx =$$

$$= [f(x_0+dx)g(x_0) - f(x_0)g(x_0+dx) + g(x_0)f(x_0) - g(x_0)f(x_0)] / [g(x_0+dx)g(x_0)] / dx =$$

$$= [g(x_0)(f(x_0+dx) - f(x_0)) - f(x_0)(g(x_0+dx) - g(x_0))] / [g(x_0+dx)g(x_0)] / dx = [g(x_0)f' - f(x_0)g'] / g(x_0+dx)g(x_0) =$$

$$= [g(x_0)f' - f(x_0)g'] / g(x_0)g(x_0) = (g \cdot f' - f \cdot g') / g^2$$



$$S(x) = x \cdot (100 - 2x) = -2x^2 + 100x$$

$$y = ax^2 + bx + c$$

$$x = -b / (2a)$$

$$x = 100 / 4 = 25$$

$$y = 1250$$

$$S'(x) = (-2x^2 + 100x)' =$$

$$= (-2x^2)' + (100x)' =$$

$$= -2(x^2)' + 100(x)' =$$

$$= -4x + 100 = \text{tg}A = 0$$

$$-4x + 100 = 0$$

$$x = 25$$