

Calc. AB WS: Symbolic Deriv./ Integrals Name: _____ Per. _____

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
4	4	-6	$-\frac{1}{2}$	2
8	5	7	-1	3

Find $h'(x)$ and $h'(4)$ for # 1-6.

1) $h(x) = [f(2x)]^{\frac{1}{2}}$

2) $h(x) = g(f(x))$

3) $h(x) = \arcsin g(x)$

4) $h(x) = \arctan f(2x)$

5) $h(x) = \ln[g(x)]$

6) $h(x) = e^{g(2x)}$

Find $h'(x)$ for # 7-8.

7) $h(x) = [f(x)]^{g(x)}$

8) $h(x) = \sin(3g(x)^2)$

Find the equation of the tangent line to $h(x)$ at $x = 4$ for # 9 -10

$$f(4) = 4$$

$$f'(4) = -6$$

$$g(4) = -\frac{1}{2}$$

$$g'(4) = 2$$

$$f(8) = 5$$

$$f'(8) = 7$$

$$g(8) = -1$$

$$g'(8) = 3$$

9) $h(x) = x^2 g(x)$

10) $h(x) = \frac{f(2x)}{g(2x)}$

Use to evaluate # 11-13

$$f(3) = 13$$

$$f'(3) = -17$$

$$h(3) = 11$$

$$h'(3) = 22$$

$$f(9) = 24$$

$$f'(9) = 22$$

$$h(9) = 50$$

$$h'(9) = 42$$

11) $\int_3^9 h'(x) dx =$

12) $\int_3^1 f''(3x) dx =$

13) $\frac{d}{dx} \int_0^x f(t) dt$ at $x = 9$