

Worksheet 12 - FTC

Period _____

Evaluate each definite integral.

1) $\int_2^3 \frac{1}{t} dt$

2) $\int_{-4}^{-1} -2e^{s+1} ds$

3) $\int_{-1}^0 (-w^4 + w^2 + w - 4) dw$

4) $\int_{\frac{\pi}{6}}^{\frac{\pi}{4}} -2 \cdot \sec^2 w dw$

5) $\int_{-5}^{-2} -\frac{4}{s^3} ds$

6) $\int_{-3}^1 -3r^{\frac{1}{3}} dr$

For problems 7-11, you are given a table containing some values of differentiable functions $f(x)$, $g(x)$ and their derivatives. Use the table data to solve each problem.

7)

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
1	1	2	5	-2
2	3	$\frac{3}{2}$	3	-2
3	4	1	1	0
4	5	1	3	$\frac{3}{2}$
5	6	$-\frac{1}{2}$	4	1
6	4	-2	5	1

Given $h(x) = f(g(x))$, find $h'(1)$

8) $\int_3^6 f'(x) dx$

9) $\int_1^5 (f'(x) - 2g'(x)) dx$

10) $\int_5^2 4f''(x) dx$

11) $\int_3^4 (f(x) \cdot g'(x) + g(x) \cdot f'(x)) dx$

Hint: Think reverse derivative rules.

12) $\int_2^6 f'(g(x)) \cdot g'(x) dx$

Hint: Think reverse derivative rules.