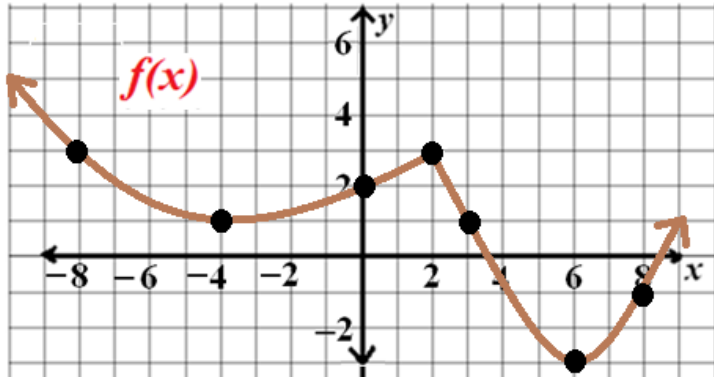


### Riemann Sums Worksheet

Use the graph below to answer the questions 1-9.



1.) Fill in the chart with the given points from the graph of  $f(x)$ .

$f(x)$	<b>-8</b>							<b>8</b>
$x$								

2.) Approximate  $\int_{x=-8}^{x=0} f(x) dx$  using a Right Riemann Sum with the given subintervals.

3.) Approximate  $\int_{x=-4}^{x=3} f(x) dx$  using a Left Riemann Sum with the given subintervals.

4.) Approximate  $\int_{x=-4}^{x=6} f(x) dx$  using a Trapezoidal Riemann Sum with the given subintervals.

5.) Approximate  $\int_{x=-8}^{x=8} f(x) dx$  using a Right Riemann Sum with the given subintervals.

6.) Approximate  $\int_{x=3}^{x=8} f(x) dx$  using a Left Riemann Sum with the given subintervals.

7.) Approximate  $\int_{x=-4}^{x=2} f(x) dx$  using a Right Riemann Sum with the given subintervals.

8.) Approximate  $\int_{x=0}^{x=3} f(x) dx$  using a Trapezoidal Riemann Sum with the given subintervals.

9.) Approximate  $\int_{x=-4}^{x=-8} f'(x) dx$  using a Left Riemann Sum with the given subintervals.

$x$	0	4	8	12	16	20	24	27	29
$f'(x)$	1	2	3	4	5	6	7	8	9

**Use table above to answer the questions 10-19.**

10.) Approximate  $\int_{x=0}^{x=8} f'(x) dx$  using a Right Riemann Sum with the given subintervals.

11.) Approximate  $\int_{x=0}^{x=16} f'(x) dx$  using a left Riemann Sum with 2 subintervals of equal length.

12.) Approximate  $\int_{x=0}^{x=24} f'(x) dx$  using a Trapezoidal Riemann Sum with 3 subintervals of equal length.

13.) Approximate  $\int_{x=0}^{x=16} f'(x) dx$  using a midpoint Riemann Sum with 2 subintervals of equal length.

14.) Explain why a midpoint sum can't be used to approximate  $\int_{x=24}^{x=29} f'(x) dx$ .

15.) Approximate  $\int_{x=20}^{x=29} f'(x) dx$  using a left Riemann Sum with given subintervals.

16.) Approximate  $\int_{x=16}^{x=16} f'(x) dx$  using an *Octagonal* Riemann Sum with the given subintervals.

*Evaluate*

17.)  $\int_{x=4}^{x=8} f''(x) dx$

18.)  $\int_{x=0}^{x=16} f''(x) dx$

19.)  $\int_{x=8}^{x=0} f''(x) dx$