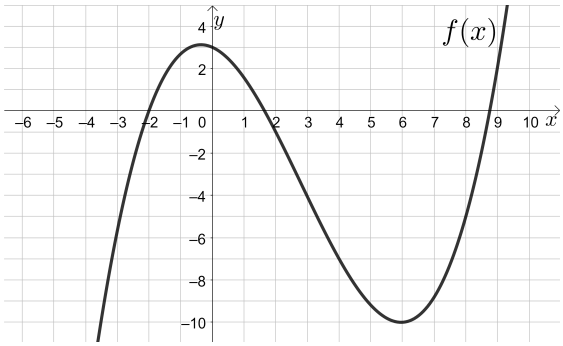
1. Particular values of a velocity function, $v(t)$, (in feet/second) are given in the table below, where t is in seconds.

t	3	6	9	12	15	18	21	24
$v(t)$	$\frac{124}{3}$	$\frac{122}{3}$	$\frac{364}{9}$	$\frac{121}{3}$	$\frac{604}{15}$	$\frac{362}{9}$	$\frac{844}{21}$	$\frac{241}{6}$

Estimate the total distance traveled by the object on the interval $[3,21]$ using 3 subintervals of equal width and a right-hand Riemann sum.

2. Given the graph of $f(x)$ below, estimate the net area between the graph of $f(x)$ and the x-axis on the interval $[0,8]$ using four subintervals of equal width and a left-hand Riemann sum.



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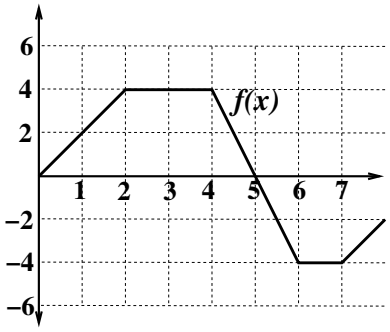
3. Use a Riemann sum with 5 equal subintervals and right endpoints to approximate $\int_{-1}^{5} (x^3 - 3x^2 + x - 3)\,dx$

4. Use the figure below to evaluate the following integral:



$$\int_{3}^{6} (x^2 + 2f(x))\,dx$$

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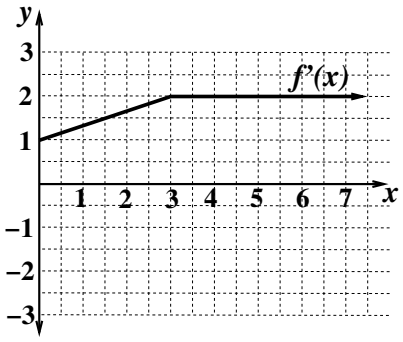
5. Evaluate the following integral:

$$\int_k^4 \frac{15x^4 - 6}{x^5 - 2x + 8}\,dx$$

6. Use the graph of $f'(x)$ below and the fact that $f(1.5) = 9$ to find $f(6)$.



7. The marginal revenue function for a product is given to be $R'(x) = 20 - 0.2x$ dollars per item when x items are sold. Find the change in revenue when the number of items sold changes from 20 to 45.

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8. Find the absolute extrema of $f(x) = \dfrac{x^2 - 21}{x+5}$ on the interval $[-4, 1]$.

9. A box with a square base and an open top is being constructed to have a volume of 80 m^3. The material for the base costs \$5 per square meter and the material for the sides costs \$2 per square meter. Find the dimensions of the box that will minimize the cost of materials.

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10. If $f'(x) = 3x^2 - 2e^x - \frac{1}{x^5} - \frac{3}{x} - 2^x$ and $f(1) = \frac{5}{4}$, find $f(x)$.

11. Evaluate the following integral:

$$\int \frac{6(x+1)(7x-8)}{x^3}\,dx$$

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12. The marginal profit function for a cell phone company is given by $P'(x) = \dfrac{2x^{5/3}}{\sqrt{x^{8/3}+513}} - 4$ dollars per cell phone, where x is the number of cell phones sold. If the break-even quantity for this company is 64 cell phones, find the company's profit when 216 cell phones are sold.

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