

Section 5.6: Answers

1a) $\int_{-2}^2 (4 - x^2) dx$

1b) 10.67

3a) $\int_{-2}^2 (-x^2 + 8 - x^2) dx = \int_{-2}^2 (-2x^2 + 8) dx$

3b) 21.33

5a) $\int_{-1}^2 (-x^2 + x + 7) dx$

5b) 19.5

7a) $\int_0^1 (\sqrt{x} - x^2) dx + \int_1^2 (x^2 - \sqrt{x}) dx$

7b) $0.33 + 1.11 = 1.44$

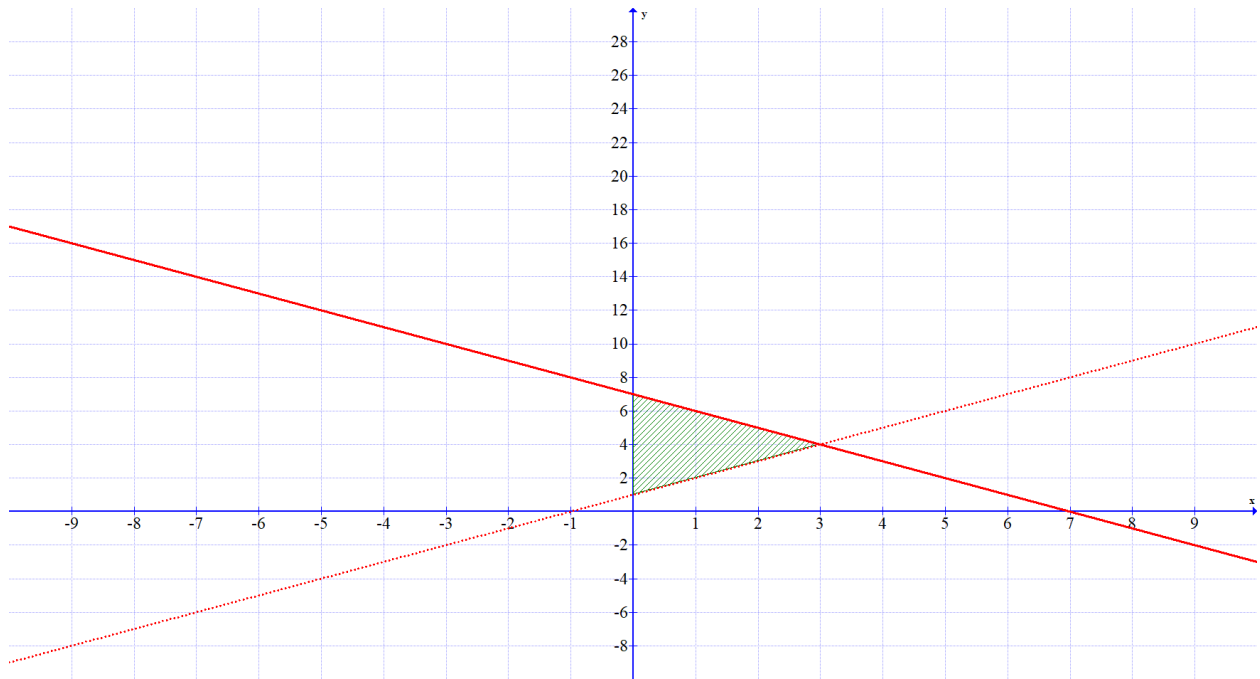
9a) $\int_{-1}^1 (-2x + 2) dx + \int_1^4 (2x - 2) dx$

9b) $4 + 9 = 13$

11) $f(x) = x + 1$ and $g(x) = 7 - x$ on $[0,3]$.

11a) Use a calculator to sketch a graph of both functions.

$f(x) = x + 1$ dashed $g(x) = 7 - x$ solid



11b) Determine the function that is the "top" function.

$g(x)$ is the "top" function in the shaded region

11c) Create the integral needed to find the area between the curves.

$$\int_0^3 (-2x + 6) dx$$

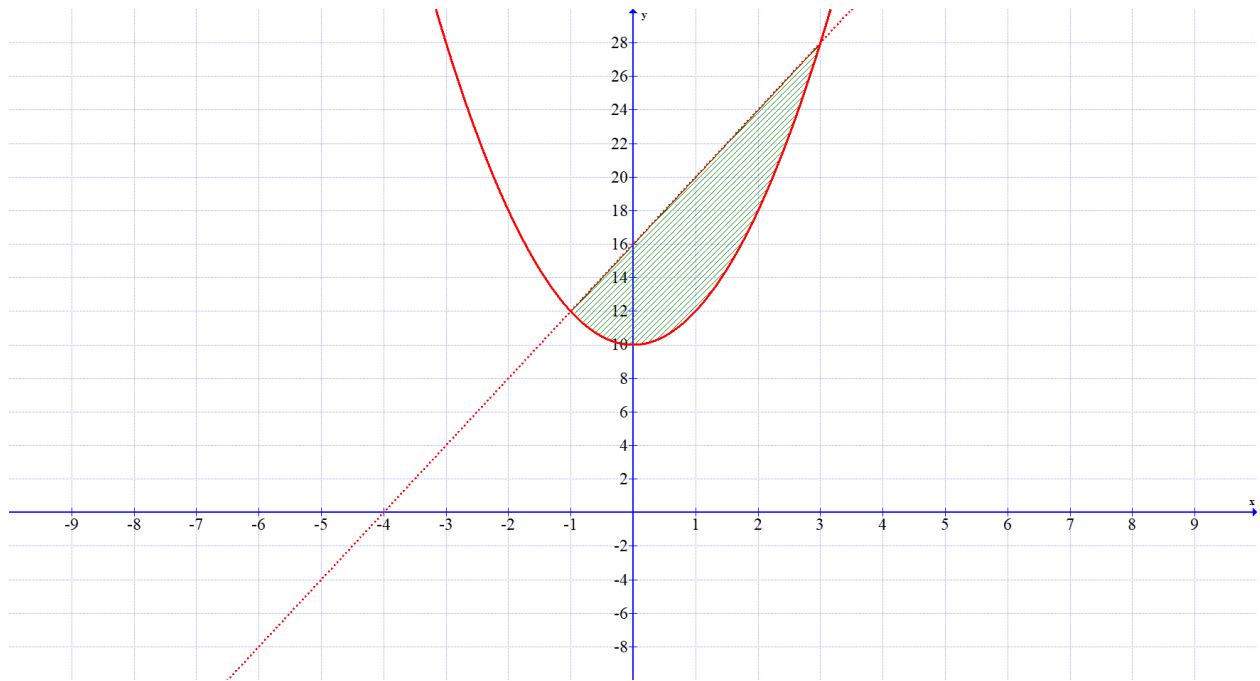
11d) Find the area between the graphs over the given interval $[a,b]$
(You may use your calculator to compute the desired area.)

$$\text{area} = 9$$

13) $f(x) = 4x + 16$ and $g(x) = 2x^2 + 10$ on $[-1, 3]$.

13a) Use a calculator to sketch a graph of both functions.

$f(x) = 4x + 16$ dashed $g(x) = 2x^2 + 10$ solid



13b) Determine the function that is the “top” function.

$f(x) = 4x + 16$ is the top function

c) Create the integral needed to find the area between the curves.

$$\int_{-1}^3 (-2x^2 + 4x + 6) dx$$

13d) Find the area between the graphs over the given interval $[a, b]$

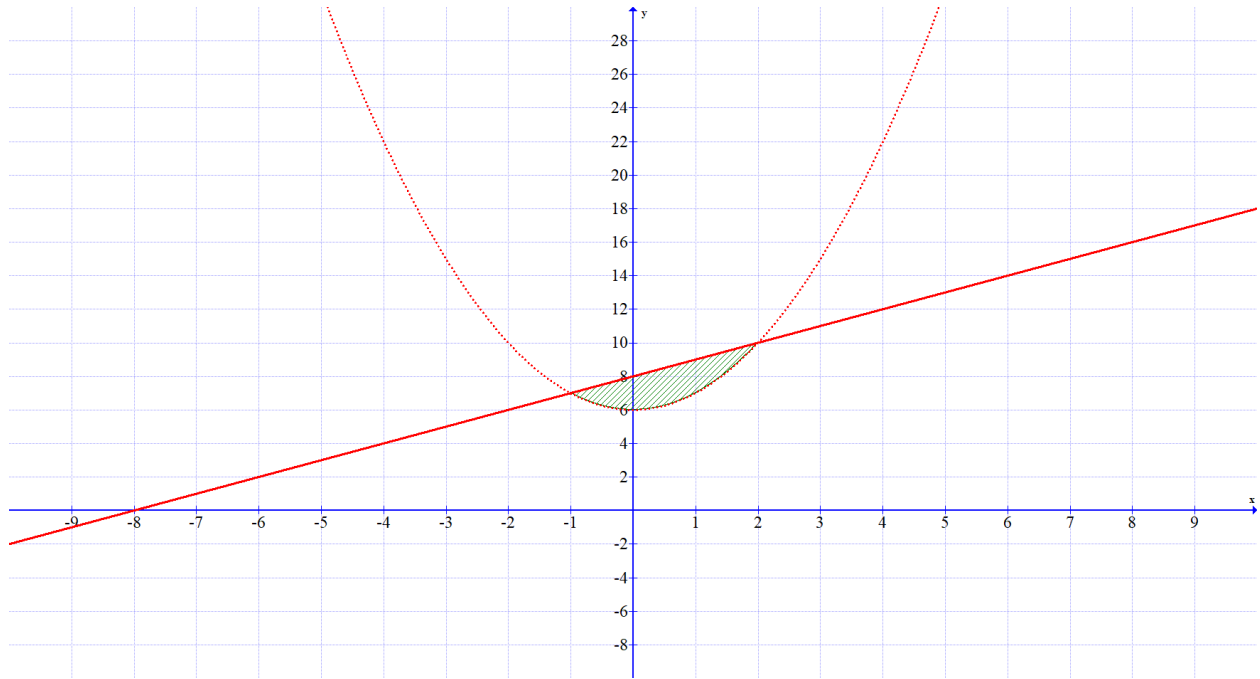
(You may use your calculator to compute the desired area.)

Area 21.33

15) $f(x) = x^2 + 6$ and $g(x) = x + 8$ on $[-1, 2]$.

15a) Use a calculator to sketch a graph of both functions.

$f(x) = x^2 + 6$ dashed $g(x) = x + 8$ solid



15b) Determine the function that is the “top” function.

$g(x) = x + 8$ is the top function.

c) Create the integral needed to find the area between the curves.

$$\int_{-1}^2 (-x^2 + x + 2) dx$$

15d) Find the area between the graphs over the given interval $[a, b]$
(You may use your calculator to compute the desired area.)

area 4.5