1. The velocity of an object is given $v(t) = t^2 + 1$.
   a) How far does the object travel between $t = 0$ and $t = 6$?
   b) what is the average velocity of the object on the interval $[0, 6]$?
   c) What is the average velocity of the object on the interval $[2, 10]$?
2. The velocity of an object is given $v(t) = 7e^{-t/2}$.
   a) How far does the object travel between $t = 0$ and $t = 4$?
   b) what is the average velocity of the object on the interval $[0, 4]$?
   c) What is the average velocity of the object on the interval $[0, 10]$?
3. The velocity of an object is $v(t) = -6t + 15$.
   a) How far does the object travel between $t = 0$ and $t = 3$?
   b) What is the average velocity of the object on the interval $[0, 3]$?
4. Find the average value of the function $f(x) = \dfrac{1}{\sqrt{x}}$ on the interval $[1, 5]$
5. Water is flowing out of a reservoir at $300t^2$ liters per second for t between 0 and 5. How many liters are released in this period?
6. Compute the area determined by the graphs of $f(x) = 2x + 8$ and $g(x) = x^2 + 5$.
7. Compute the area determined by the graphs of $f(x) = x^2 - 9$ and $g(x) = 9 - x^2$.
8. Compute the area determined by the graphs of $f(x) = 4 - x^2$ and $g(x) = 3x$.

Answers

1. a) 78 b) 13 c) $\frac{127}{3}$
2. a) $14 - \frac{14}{e^2}$ b) $\frac{7}{2} - \frac{7}{2e^2}$ c) $\frac{7}{5} - \frac{7}{5e^5}$
3. a) 18 b) 6
4. $\frac{\sqrt{5}-1}{2}$
5. 12 500 liters
6. $\frac{32}{3}$
7. 72
8. $\frac{125}{6}$

