For this problem of the week, you are given three velocity-time graphs. Assume that v > 0 implies movement to the right and v < 0 implies movement to the left.   Any reference to starting point refers to the position of the particle when t = 0. Good luck.

A particle moves on a straight line in such a way that its velocity (in feet per second), as a function of time (in seconds) is shown by function f below.

graph of v = f(t)
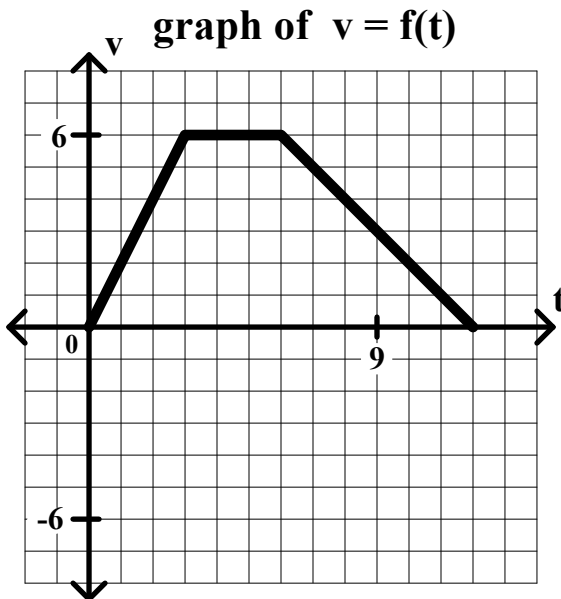
Answer the following questions.

1. Fill out the following table.

	$0 \leq t \leq 3$	$3 \leq t \leq 6$	$6 \leq t \leq 9$	$9 \leq t \leq 12$	$0 \leq t \leq 12$
a. average acceleration					
b. distance moved					
c. average velocity					
d. average speed					
e. final distance from starting point					

2. Evaluate each of the following: f(2) = _____   f(5) = _____   f(8) = _____   f(11) = _____

3. Evaluate each of the following: f'(2) = _____   f'(5) = _____   f'(8) = _____   f'(11) = _____

4. Evaluate each of the following.

$$\int_0^3 f(x)\,dx = \underline{\quad} \quad \int_3^6 f(x)\,dx = \underline{\quad} \quad \int_6^9 f(x)\,dx = \underline{\quad} \quad \int_9^{12} f(x)\,dx = \underline{\quad} \quad \int_0^{12} f(x)\,dx = \underline{\quad}$$

A particle moves on a horizontal line in such a way that its velocity (in feet per second), as a function of time (in seconds) is shown by function g below.

graph of v = g(t)
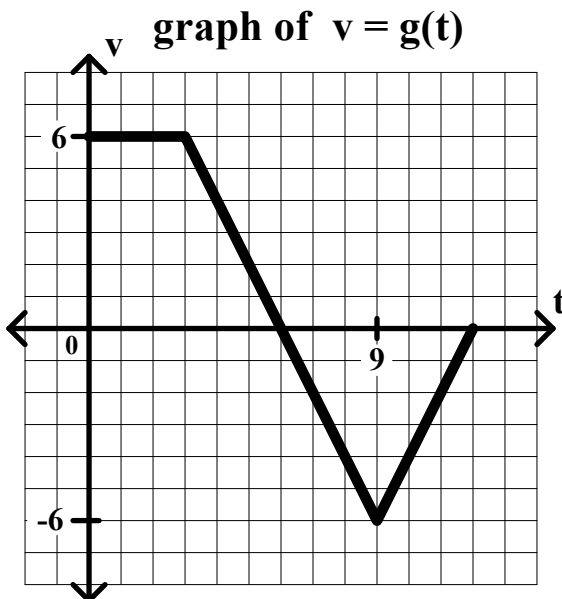
Answer the following questions.

5. Fill out the following table.

	$0 \le t \le 3$	$3 \le t \le 6$	$6 \le t \le 9$	$9 \le t \le 12$	$0 \le t \le 12$
a. average acceleration					
b. distance moved					
c. average velocity					
d. average speed					
e. final distance from starting point					

6. Evaluate each of the following: g(2) = _____ g(5) = _____ g(8) = _____ g(11) = _____

7. Evaluate each of the following: g'(2) = _____ g'(5) = _____ g'(8) = _____ g'(11) = _____

8. Evaluate each of the following.

$\int_{0}^{3} g(x)\, dx =$ _____ $\int_{3}^{6} g(x)\, dx =$ _____ $\int_{6}^{9} g(x)\, dx =$ _____ $\int_{9}^{12} g(x)\, dx =$ _____ $\int_{0}^{12} g(x)\, dx =$ _____

A particle moves on a horizontal line in such a way that its velocity (in feet per second), as a function of time (in seconds) is shown by function h below.

graph of v = h(t)
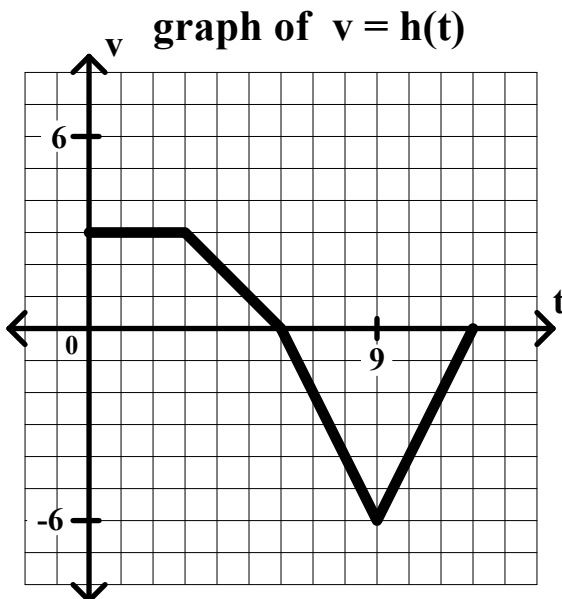
Answer the following questions.

9. Fill out the following table.

	$0 \leq t \leq 3$	$3 \leq t \leq 6$	$6 \leq t \leq 9$	$9 \leq t \leq 12$	$0 \leq t \leq 12$
a. average acceleration					
b. distance moved					
c. average velocity					
d. average speed					
e. final distance from starting point					

10. Evaluate each of the following: h(2) = _____   h(5) = _____   h(8) = _____   h(11) = _____

11. Evaluate each of the following: h '(2) = _____   h '(5) = _____   h '(8) = _____   h '(11) = _____

12. Evaluate each of the following.

$\int_{0}^{3} h(x)\, dx =$ _____ $\int_{3}^{6} h(x)\, dx =$ _____ $\int_{6}^{9} h(x)\, dx =$ _____ $\int_{9}^{12} h(x)\, dx =$ _____ $\int_{0}^{12} h(x)\, dx =$ _____