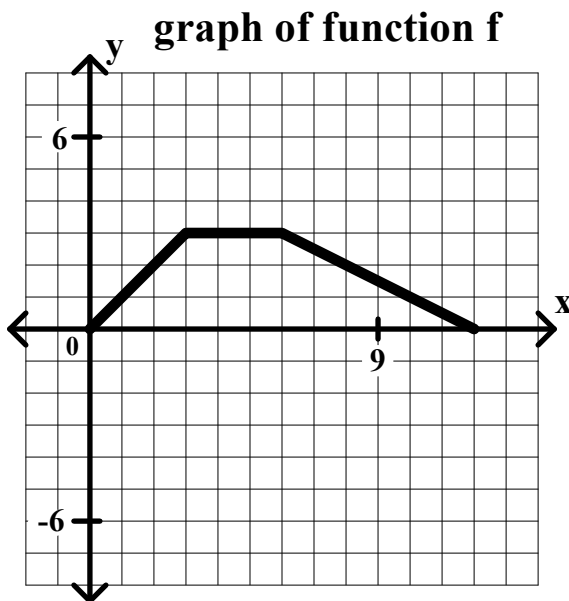


Consider the function f whose graph is shown below.



Answer the following questions.

1. What is the domain of f ? _____ What is the range of f ? _____

2. Write a piece-wise definition of f .

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

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

5. For what values of x in the domain of f is $f'(x)$ undefined? _____

6. Evaluate each of the following.

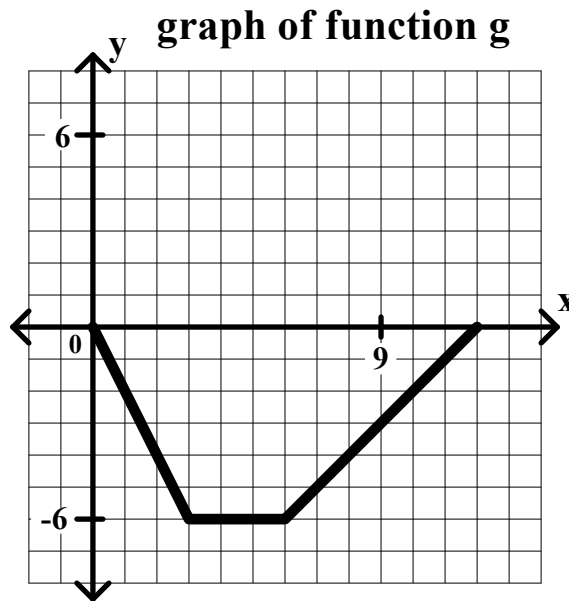
$$\int_0^3 f(x) \, dx = \underline{\hspace{2cm}}$$

$$\int_3^6 f(x) \, dx = \underline{\hspace{2cm}}$$

$$\int_6^{12} f(x) \, dx = \underline{\hspace{2cm}}$$

Advanced Challenge Problem #44 page 2

Consider the function g whose graph is shown below.



Answer the following questions.

7. What is the domain of g ? _____ What is the range of g ? _____

8. Write a piece-wise definition of g .

9. Evaluate each of the following: $g(2) =$ _____ $g(5) =$ _____ $g(8) =$ _____

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

11. for what values of x in the domain of g is $g'(x)$ undefined? _____

12. Evaluate each of the following.

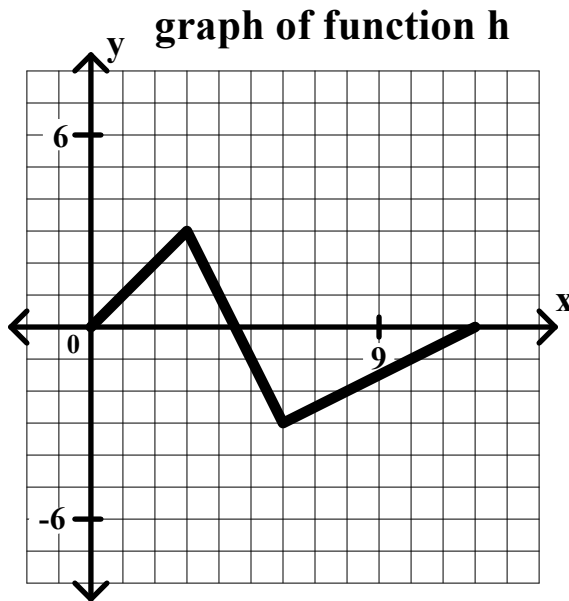
$$\int_0^3 g(x) dx = \underline{\hspace{2cm}}$$

$$\int_3^6 g(x) dx = \underline{\hspace{2cm}}$$

$$\int_6^{12} g(x) dx = \underline{\hspace{2cm}}$$

Advanced Challenge Problem #44 page 3

Consider the function h whose graph is shown below.



Answer the following questions.

13. What is the domain of h ? _____ What is the range of h ? _____

14. Write a piece-wise definition of h .

15. Evaluate each of the following: $h(2) =$ _____ $h(5) =$ _____ $h(8) =$ _____

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

17. for what values of x in the domain of h is $h'(x)$ undefined? _____

18. Evaluate each of the following.

$$\int_0^3 h(x) dx = \underline{\hspace{2cm}}$$

$$\int_3^6 h(x) dx = \underline{\hspace{2cm}}$$

$$\int_6^{12} h(x) dx = \underline{\hspace{2cm}}$$