

**Topic:** Solving with substitution**Question:** Use substitution to evaluate the limit.

$$\lim_{x \rightarrow 5} \frac{x^2 + 2x + 1}{x + 5}$$

**Answer choices:**

A      12

B      6

C      1.6

D      3.6



**Solution: D**

Substitute  $x = 5$  into the function to evaluate the limit.

$$f(x) = \frac{x^2 + 2x + 1}{x + 5}$$

$$f(5) = \frac{5^2 + 2(5) + 1}{5 + 5}$$

$$f(5) = \frac{36}{10}$$

$$f(5) = 3.6$$



**Topic:** Solving with substitution**Question:** Use substitution to evaluate the limit.

$$\lim_{x \rightarrow 6} (x^3 + 6 - 3x)$$

**Answer choices:**

- A      204
- B      198
- C      240
- D      234



**Solution: A**

Substitute  $x = 6$  into the function to evaluate the limit.

$$f(x) = x^3 + 6 - 3x$$

$$f(6) = 6^3 + 6 - 3(6)$$

$$f(6) = 216 + 6 - 18$$

$$f(6) = 204$$



**Topic:** Solving with substitution**Question:** Use substitution to evaluate the limit.

$$\lim_{x \rightarrow 0} \frac{-1}{3(x+3)}$$

**Answer choices:**

A  $-\frac{1}{9}$

B  $\frac{1}{9}$

C  $-\frac{1}{6}$

D  $\frac{1}{6}$



**Solution: A**

Substitute  $x = 0$  into the function to evaluate the limit.

$$f(x) = \frac{-1}{3(x+3)}$$

$$f(0) = \frac{-1}{3(0+3)}$$

$$f(0) = \frac{-1}{3(3)}$$

$$f(0) = -\frac{1}{9}$$

