TEST YOUR UNDERSTANDING

Think Carefully

1. \( y = (x + 2)^2 \)
2. \( y = \frac{1}{(x + 2)^2} \)
3. \( y = \frac{1}{x^2 + 2} \)
4. \( y = \pm 3x \)
5. \( y = \frac{1}{\sqrt{x^2 + 2x + 1}} \)
6. \( y^2 = x^2 \)
7. \( y = \frac{x}{|x|} \)
8. \( y = \sqrt{2 - x} \)

(Assignments: Page 132)

TEST YOUR UNDERSTANDING

Let \( f(x) = x^2 - 3x \) and find each of the following.

Think Carefully

1. \( f(-3) \)
2. \( f(5) \)
3. \( f(0) \)
4. \( f(\frac{1}{2}) \)
5. \( f(-\frac{1}{2}) \)
6. \( f(a) \)
7. \( f(2a) \)
8. \( 2f(x) \)
9. \( f(x - 3) \)
10. \( f(3 - x) \)
11. \( \frac{1}{f(x)} \)
12. \( \frac{1}{f(\frac{1}{x})} \)

(Assignments: Page 132)

Find the difference quotient \( \frac{f(x) - f(3)}{x - 3} \) and simplify for the given function \( f \).

39. \( f(x) = x^2 \)
40. \( f(x) = x^2 - 1 \)
41. \( f(x) = \frac{1}{x} \)
42. \( f(x) = \sqrt{x} \)
43. \( f(x) = 2x + 1 \)
44. \( f(x) = -x^3 + 1 \)