MAC 1105 - Supplement D (2.4)

Write the equation \( g(x) \) that is the graph of:

1. \( f(x) = \frac{1}{x} \) shifted 4 units up
2. \( f(x) = x^3 \) shifted 6 units right
3. \( f(x) = \sqrt{x} \) reflected across the \( y \) axis
4. \( f(x) = x^2 \) reflected across the \( x \) axis
5. \( f(x) = |x| \) shrunk vertically by a factor of \( \frac{1}{2} \)
6. \( f(x) = \sqrt[3]{x} \) shifted 5 units down and 8 right
7. \( f(x) = |x| \) shifted 5 units right and 9 units up
8. \( f(x) = \frac{1}{x} \) shifted 3 units left and 7 units up
9. \( f(x) = \sqrt{x} \) reflected across the \( y \) axis, shifted 6 units up
10. \( f(x) = |x| \) reflected across the \( x \) axis, shifted 4 units left

Given the graph of \( f(x) \) below, draw the following transformations. Label the points given.

- \( f(x) \)
- \( f(x) - 2 \)
- \( -f(x) + 1 \)
- \( f(x + 1) \)
- \( -f(x) \)
- \( -f(x + 2) \)
- \( f(x - 1) \)
- \( f(-x) \)
- \( 2f(x) \)

(revised 8/08)
1. \( g(x) = \frac{1}{x} + 4 \)
2. \( g(x) = (x - 6)^3 \)
3. \( g(x) = \sqrt{-x} \)
4. \( g(x) = -x^2 \)
5. \( g(x) = \frac{1}{2} |x| \)
6. \( g(x) = \sqrt{x - 8} - 5 \)
7. \( g(x) = |x - 5| + 9 \)
8. \( g(x) = \frac{1}{x + 3} + 7 \)
9. \( g(x) = \sqrt{-x} + 6 \)
10. \( g(x) = -|x + 4| \)

13. \( f(x) - 2 \)
Shift down 2 units

14. \( -f(x) \)
Reflect across the x axis

15. \( f(-x) \)
Reflect across the y axis

16. \( -f(x) + 1 \)
Reflect across the x axis
Then shift up 1 unit

17. \( -f(x + 2) \)
Reflect across the x axis
Then shift left 2 units

18. \( 2f(x) \)
Stretch by a factor of 2
Multiply each y by 2

(revised 8/08)