

Kerry Ojakian's MTH 30 Class
Class Assignment #5

1. How does $f(x + 21) - 8$ transform the graph of $f(x)$?

2. How does $g(x - 1) - 42$ transform the graph of $g(x)$?

3. How does $g(25x)$ transform the graph of $g(x)$?

4. How does $g(\frac{x}{3})$ transform the graph of $g(x)$?

5. Write a formula for the function obtained when the graph of $f(x) = x^3$ is shifted up 1 unit and to the left 2 units.

6. Write a formula for the function obtained when the graph of $f(x) = |x|$ is shifted up 3 units and to the right 7 units.

7. Write a formula for the function obtained when the graph of $g(x) = \frac{1}{x}$ is shifted down 4 units and to the right 5 units.
Write the resulting function as a single rational expression!

8. Graph $f(x) = x^2$. Then:

(a) Let $g(x) = (x + 3)^2 - 1$. Describe in words the transformation from graph f to graph g .

(b) Let $h(x) = -x^2$. Describe in words the transformation from graph f to graph h .

9. Determine where the function $f(x) = 7(x - 4)^2$ is increasing and where it is decreasing. Use graph transformations.

10. Determine where the function $g(x) = -3 + 72(x + 42)^3$ is increasing and where it is decreasing. Use graph transformations (this problem is easy!).

11. Determine where the function $g(x) = \frac{72}{x - 20} - 30$ is increasing and where it is decreasing. Use graph transformations.

12. Consider $f(x) = x^2 + 5$. On one axis graph the basic function it is transformed from. Then on another axis, graph $f(x)$ using graph transformations.

13. Consider $g(x) = |x + 3| - 5$. On one axis graph the basic function it is transformed from. Then on another axis, graph $g(x)$ using graph transformations.
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14. Consider $g(x) = 2 + \frac{1}{3x}$. On one axis graph the basic function it is transformed from. Then on another axis, graph $g(x)$ using graph transformations.
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15. Consider $h(x) = 4 \cdot \sqrt{x - 2}$. On one axis graph the basic function it is transformed from. Then on another axis, graph $h(x)$ using graph transformations.
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16. Consider $h(x) = 2^{x-2} - 2$. On one axis graph the basic function it is transformed from. Then on another axis, graph $h(x)$ using graph transformations.

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17. Consider $f(x) = -3x^2 - 4$. On one axis graph the basic function it is transformed from. Then on another axis, graph $f(x)$ using graph transformations.

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18. Consider $f(x) = 4^{-x}$. On one axis graph the basic function it is transformed from. Then on another axis, graph $f(x)$ using graph transformations.
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