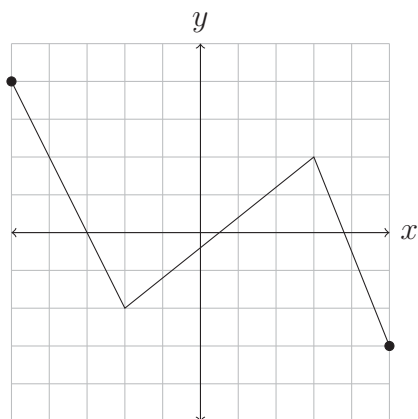


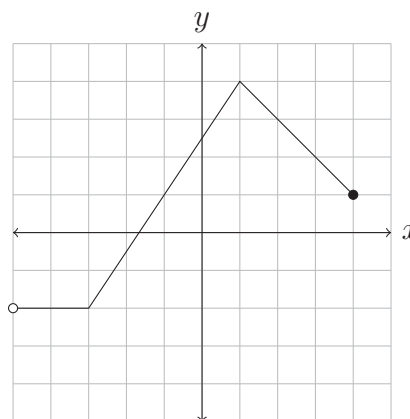
Math 111 WS 4, Function Transformations II

Name: \_\_\_\_\_

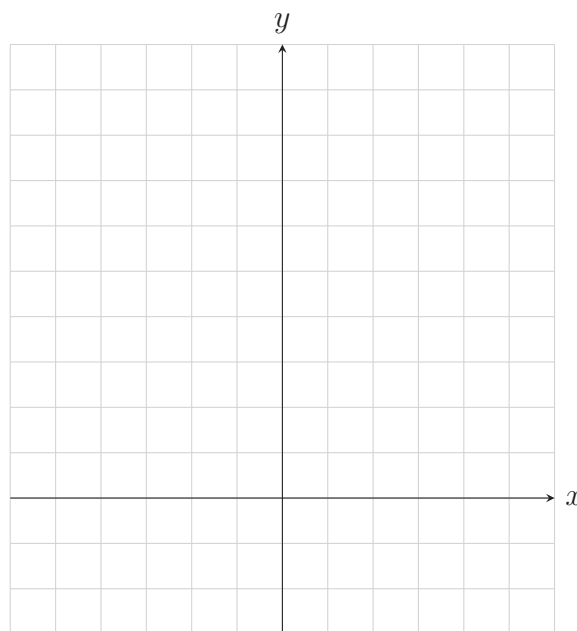
1. Given the following graph of  $y = f(x)$ , draw the graph of  $y = -f(x)$ .



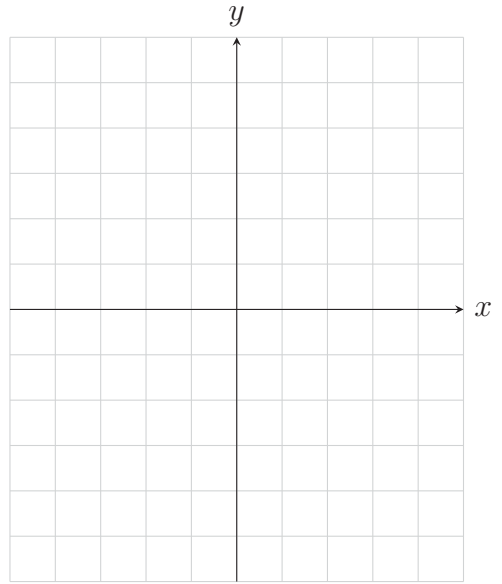
2. Given the following graph of  $y = g(x)$ , draw the graph of  $y = g(-x)$ .



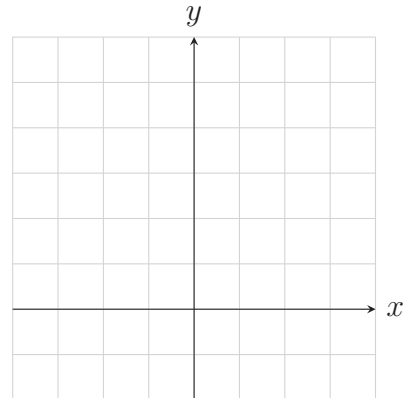
3. Use a transformation of  $\text{sqr}(x) = x^2$  to graph  $f(x) = (x - 4)^2 - 1$ .



4. Use a transformation of  $rat(x) = \frac{1}{x}$  to graph  $h(x) = \frac{1}{x+2} + 3$ .



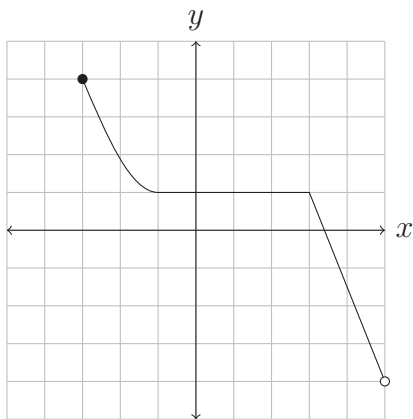
5. Use a transformation of  $sqr(x) = x^2$  to graph  $j(x) = \frac{1}{2}x^2 + 3$ .



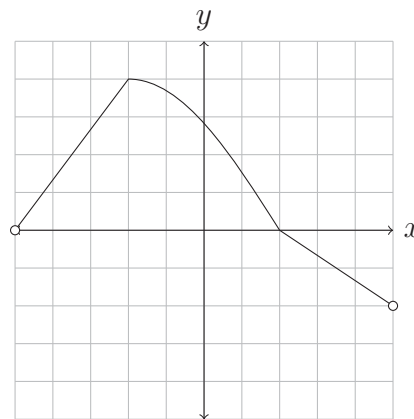
6. Use a transformation of  $sqr(x) = \sqrt{x}$  to graph  $k(x) = 2\sqrt{x-3}$ .



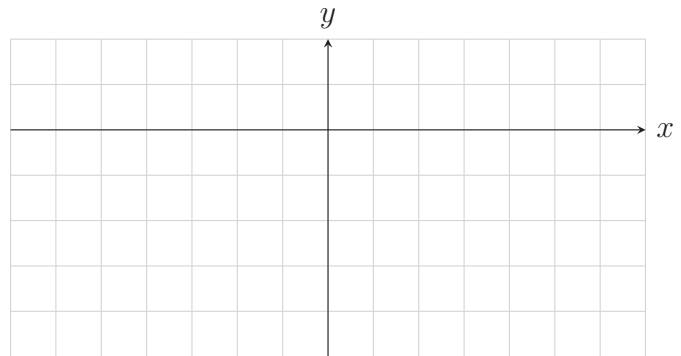
7. Given the following graph of  $y = r(x)$ , draw the graph of  $y = -r(x + 2)$ .



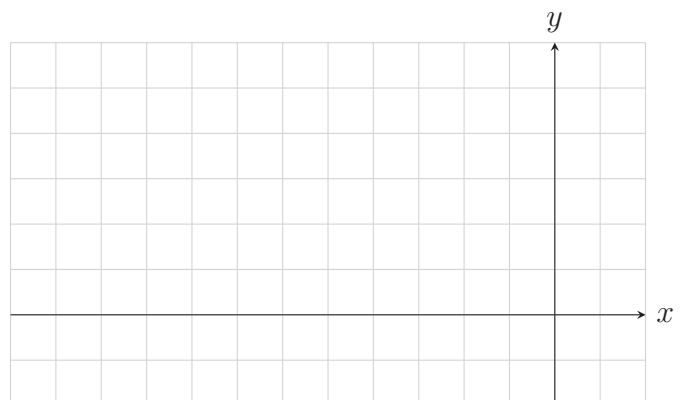
8. Given the following graph of  $y = s(x)$ , draw the graph of  $y = s(-x) - 3$ .



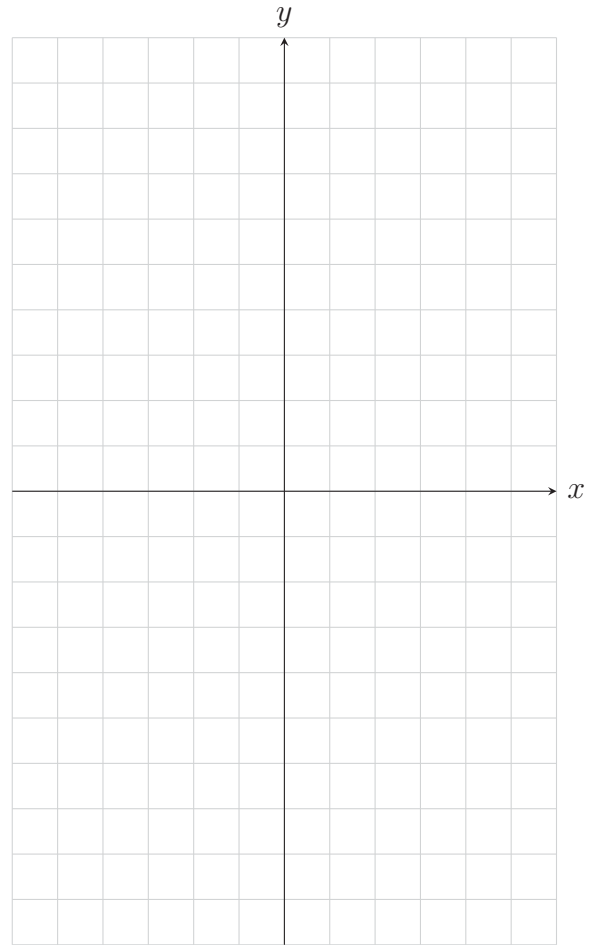
9. Use a transformation of  $\text{cubert}(x) = \sqrt[3]{x}$  to graph  $q(x) = \sqrt[3]{2x - 4} - 2$ .



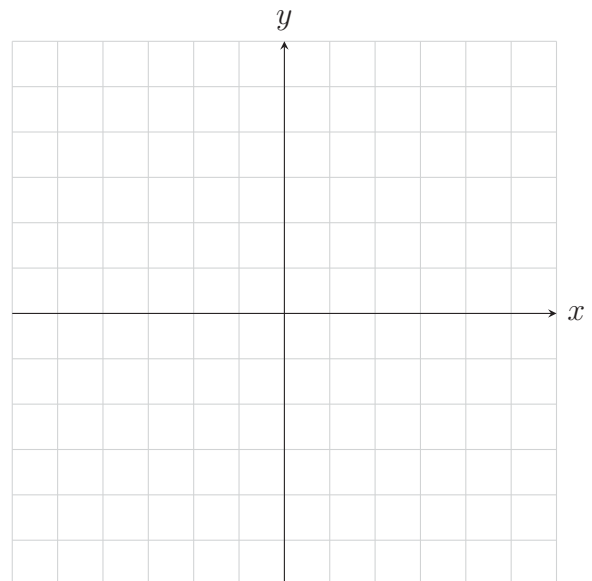
10. Use a transformation of  $\text{sqrt}(x) = \sqrt{x}$  to graph  $l(x) = \sqrt{2 - x} + 1$ .



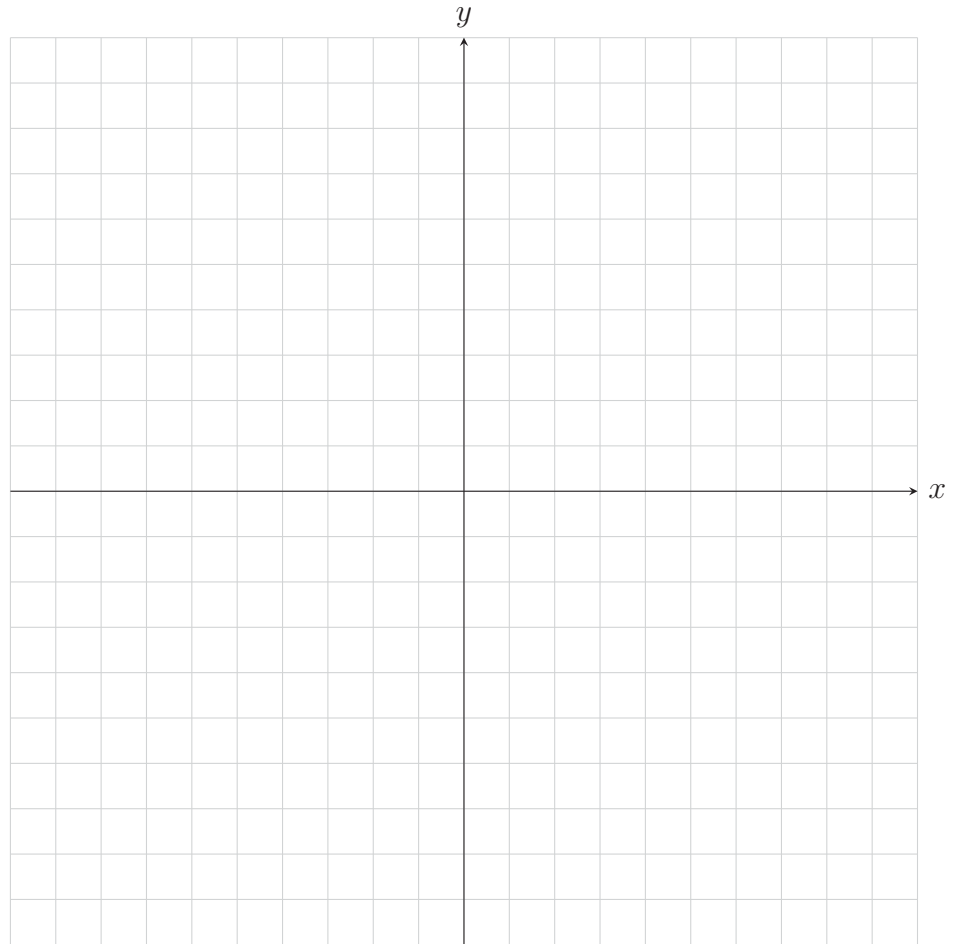
11. Use a transformation of  $\text{cube}(x) = x^3$  to graph  $p(x) = \left(\frac{1}{2}x + \frac{1}{2}\right)^3 - 1$ .



12. Use a transformation of  $\text{sqr}(x) = x^2$  to graph the function  $d(x) = -\frac{1}{3}(2(x - 1))^2 + 2$ .



13. Use a transformation of  $\text{cubert}(x) = \sqrt[3]{x}$  to graph the function  $F(x) = 3\sqrt[3]{\frac{1}{2}x + 1} - 1$ .



14. Suppose the function  $m(x) = x^2 + 5$  is shifted down two units and right one unit to obtain the graph of a new function  $n$ . Find the expression for  $n$ .
15. Suppose the function  $v(x) = \frac{1}{x-2} + 3$  is compressed horizontally by a factor of 2 and shifted down 4 to obtain the graph of a new function  $w$ . Find the expression for  $w$ .