GAT Transformations
Families of Functions

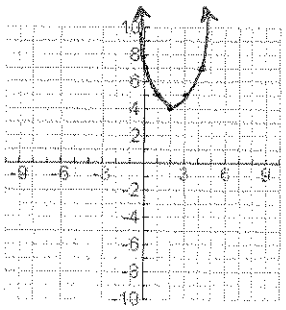
name _____

class _____ date _____

Graph each of the following without using technology. Feel free to use your NSpire to check your answer, but you should be able to look at the function and apply what your learned to move the parent (pre-image) function. Also state the domain and range.

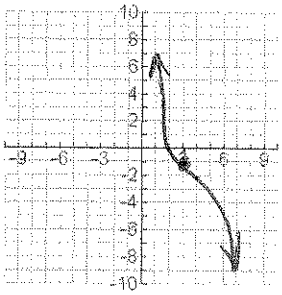
1. $f(x) = (x-2)^2 + 4$

Domain: $(-\infty, \infty)$
Range: $[4, \infty)$



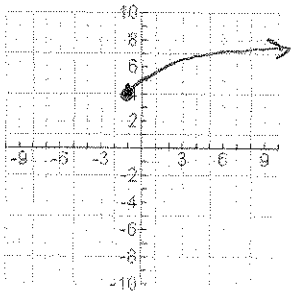
2. $f(x) = -(x-3)^3 - 1$

Domain: $(-\infty, \infty)$
Range: $(-\infty, \infty)$



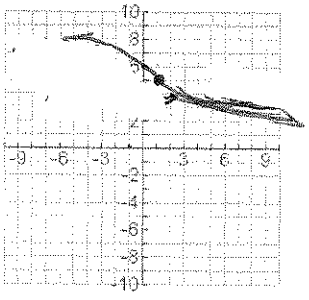
3. $f(x) = \sqrt{x+1} + 4$

Domain: $[-1, \infty)$
Range: $[4, \infty)$



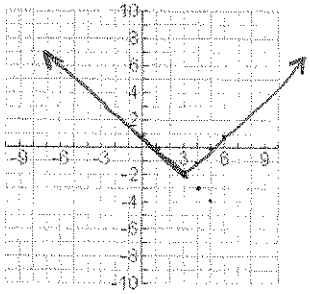
4. $f(x) = -\sqrt[3]{x-1} + 5$

Domain: $(-\infty, \infty)$
Range: $(-\infty, \infty)$



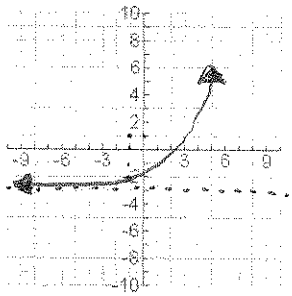
5. $f(x) = |x-3| - 2$

Domain: $(-\infty, \infty)$
Range: $[-2, \infty)$



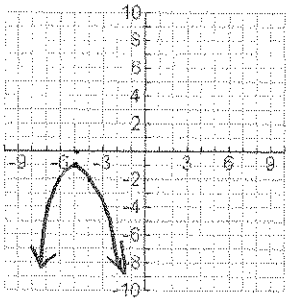
6. $f(x) = 2^{x+1} - 3$

Domain: $(-\infty, \infty)$
Range: $(-3, \infty)$



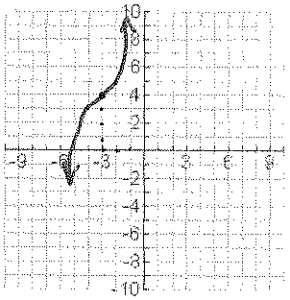
7. $f(x) = -(x+5)^2 - 1$

Domain: $(-\infty, \infty)$
Range: $(-\infty, -1]$



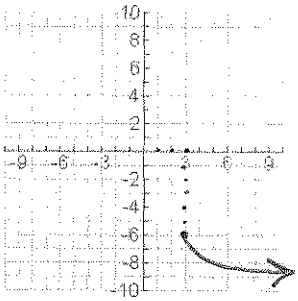
8. $f(x) = (x+3)^3 + 4$

Domain: $(-\infty, \infty)$
Range: $(-\infty, \infty)$



9. $f(x) = -\sqrt{x-3} - 6$

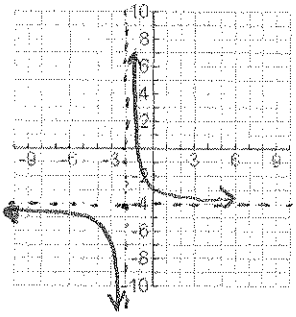
Domain: $[3, \infty)$
Range: $(-\infty, -6]$



10. $f(x) = \frac{1}{x+2} - 4$

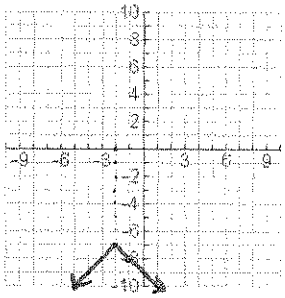
$x \neq -2$
$y \neq -4$

Domain: $\{x : x \in \mathbb{R} / -2\}$
Range: $\{y : y \in \mathbb{R} / -4\}$



11. $f(x) = -|x+2| - 7$

Domain: $(-\infty, \infty)$
Range: $(-\infty, -7]$



12. $f(x) = 2^{x-3} + 2$

Domain: $(-\infty, \infty)$
Range: $(2, \infty)$