1. Find the inverse, then graph both.   Graph $f(x)$ and $f^{-1}(x)$
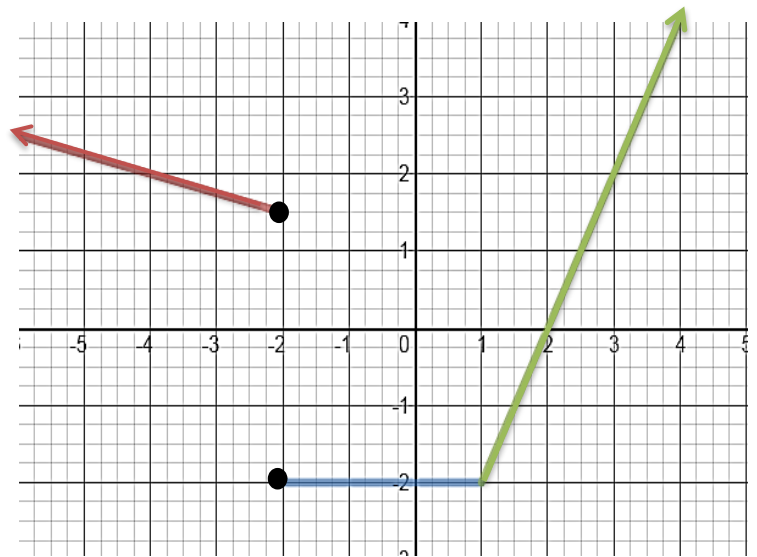
   $f(x) = \sqrt{x+3} - 4$

$f^{-1}(x) =$ _____
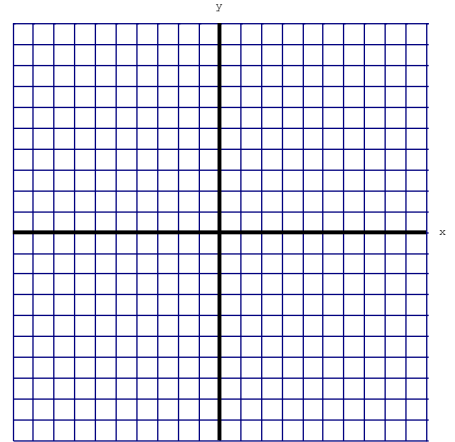
2. Is this a function?

   What is the domain?

   What is the range?

3. Simplify. Be sure to list restrictions.

   $$\frac{3x}{x^2 + 8x + 12} + \frac{6}{4x + 8}$$

   Answer:

   Restrictions:

4. Given $x^4 - 5x^3 + 10x^2 - 30x + 24$ with factors of $(x - 4)$ and $(x - 1)$, find the roots.

   Real roots: _____   Imaginary roots: _____

5. Simplify.
   a. $\sqrt{-160}$ b. $\sqrt{275}$

6. Your parents started you a savings account when you were born. They deposited $10,000 in an account that pays 2.1% annual interest, compounded monthly. Use $A = P\left(1 + \dfrac{r}{n}\right)^{nt}$.
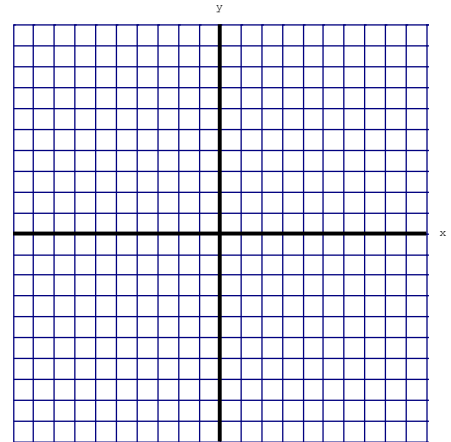
   a. How much money did you have when you turned 18?

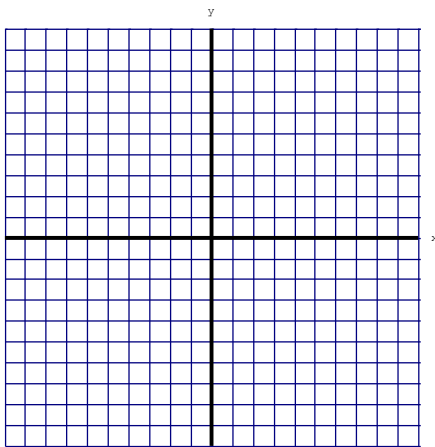   b. When did you have $11,500?

Graph.

7. $f(x) = \sin 1/2(\theta - 90)$

8. $f(x) = \frac{2}{3}|x + 1| - 4$

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

10. $f(x) = 2\cos\theta - 3$

Solve by changing to the same base or by using log properties.

11. $2^{x+7} = 16^{x+2}$

12. $\log_9(17x - 4) = 2$