Inverse of a Relation

1. If point A(2,-5) is on y = f(x), what is the image point A' on the inverse of y = f(x)?

2. Given the function f(x) = 6x + 1, determine $f^{-1}(7)$.

3. If the point (m,n) is on y = f(x), the image point on $y = f^{-1}(x) + 2$ is (n, m+2).

   If the point (w,v) is on y = f(x), what is the image point on $y = f^{-1}(x) - 5$?

4. For each of the following equations, write the equation of the inverse.

   a) y = -9x + 2

   b) $y + 3 = \frac{1}{4}(x - 1)^2$

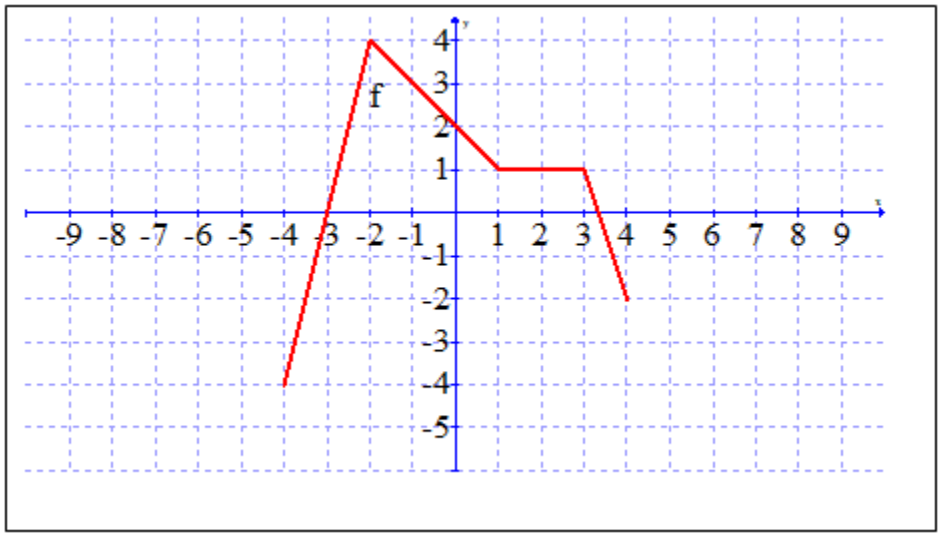
5. What is an example of a restriction that can be placed on the function $y = x^2 - 10$, such that its inverse is a function?

6. Will the inverse of the function, y = -3 | x | + 1, also be a function? How do you know?

7. Determine the invariant point of f(x) = 3x + 6 and its inverse.

8. Given $y = (x + 3)^2$, what is the domain and the x-intercept of its inverse?

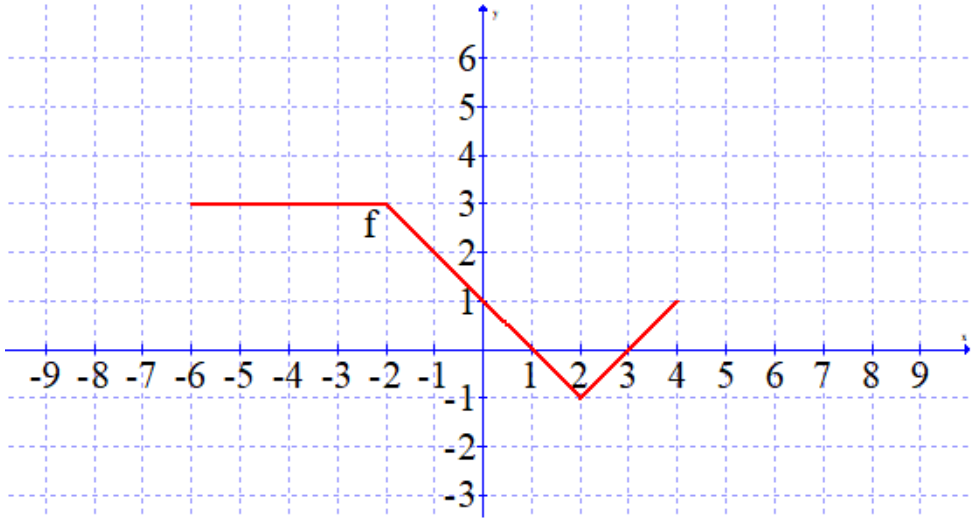
Use the following graph to answer the next question.



9. Consider 3 reflections on the graph of y =f(x) above. How many invariant points exist on

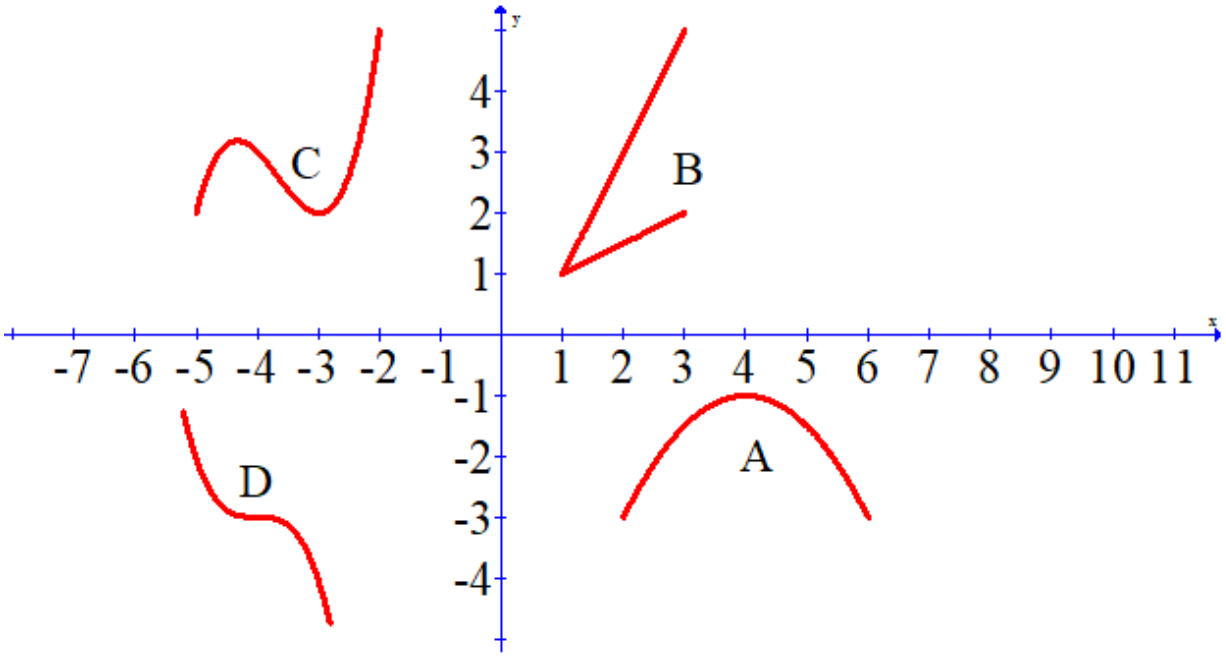
   a) y = -f(x) b) y = f(-x) c) the inverse of f(x)

10. If the number of invariant points on y = -f(x) is m, the number of invariant points reflected in the line x = 0 is n, and the number of invariant points reflected in the line y = x is k, which statement below is correct?



a) m = k b) m + n = k c) n + k = m d) m = n

Use the graph below to answer the next question.



11. On the grid above, there are 4 separate partial graphs, 1 drawn in each of the 4 quadrants. If the graph of each inverse were drawn, and if no additional restrictions are given, which graph will have an inverse that is a function?

12. a) Algebraically determine the inverse of $f(x) = (x - 2)^2$, where $x > 2$.

b)State the domain and range of $f^{-1}(x)$.

c)If (2,3) is on f(x), where does it move given $y = f^{-1}(x - 1)$?