

**NOTES: SECONDARY 2 HONORS
INVERSES OF FUNCTIONS (3.5)**

Vocabulary

- **Inverse relation:**

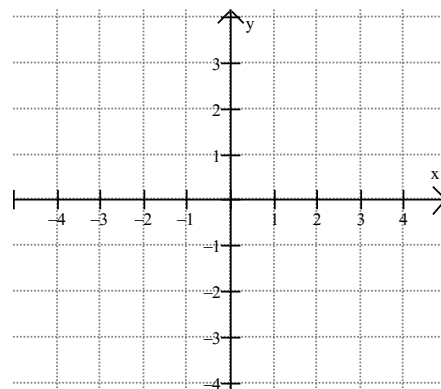
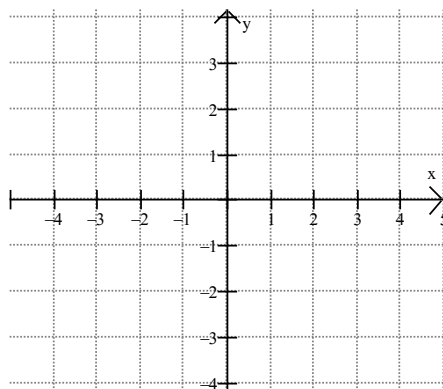
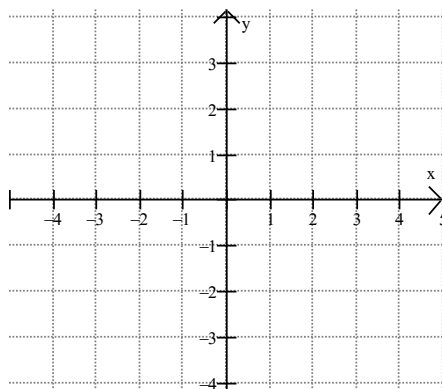
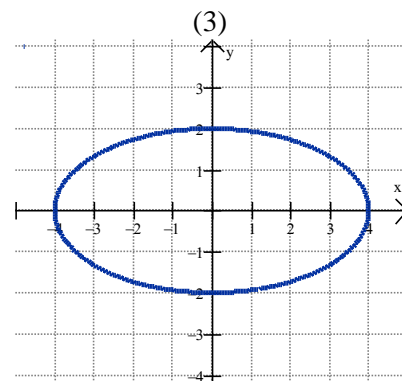
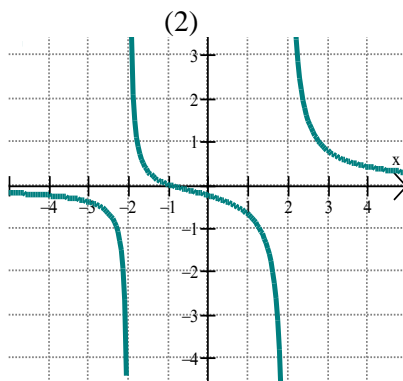
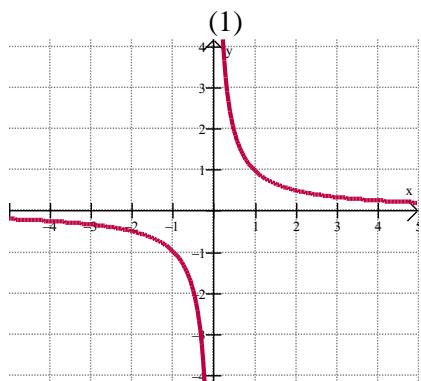
Example: Identify the domain and range of the original relation. Find the inverse relation and identify the domain and range of the inverse relation. Is the inverse relation a function?

a. $\{(1,-1), (2,-2), (-3,3), (4,-4), (5,-5)\}$

b. $\{(-4,2), (-2,1), (0,0), (2,1), (4,2)\}$

Example: Answer the following questions about each graph below. Explain your answer in complete sentences. Then graph the inverse of each relation.

- Is the relation a function?
- Is the relation's inverse a function?



Finding an inverse algebraically:

Example: Find the inverse of the following algebraically.

1. $f(x) = 3x + 2$

2. $f(x) = \frac{-4}{5}x + 1$

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

4. $f(x) = \frac{x+5}{x-1}$

Be aware of the restricted domain of inverses.

Find the domain of $f(x) = \sqrt{x+3}$.

Find $f^{-1}(x)$.

Identify the domain of $f^{-1}(x)$.

Vocabulary

- **Even function:**

- **Odd function:**

Example: Determine algebraically if the function is even, odd, or neither even nor odd.

1. $f(x) = |x| - 1$

2. $f(x) = -3x^4 - 4x^2$

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

4. $-2|x| + 4$