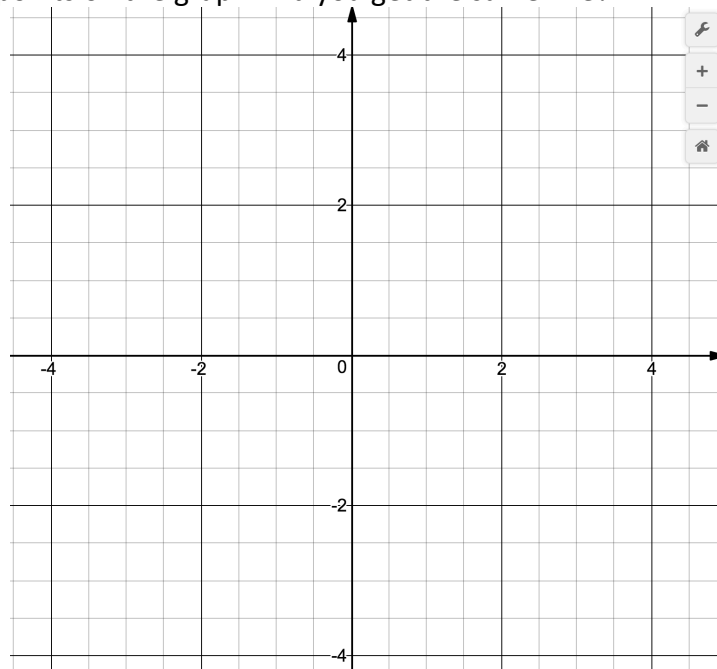# Unit 12: Inverse functions

I. Given the function:

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

1. Indicate in the table a few key values for (x,y).
2. Plot the function on the axes below.
3. Graph the line y=x as dotted line.
4. **Graph Method:** Find the inverse function by reflecting the original with respect to the symmetry line.
5. **Table Method:** Fill in the table below based on the table you filled for f(x).
6. Mark these points on the graph. Did you get the same line?

$f(x)$

x (in)	y (out)

$f^{-1}(x)$

(in) x	(out) y

Algebraic method

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

7. Using swapping x ←→ y method, find the formula for the inverse function.

II. Given the function:

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

1. Indicate in the table a few key values for (x,y).
2. Plot the function on the axes below.
3. Graph the line y=x as dotted line.
4. **Graph Method:** Find the inverse function by reflecting the original with respect to the symmetry line.
5. **Table Method:** Fill in the table below based on the table you filled for f(x).
6. Mark these points on the graph. Did you get the same line?
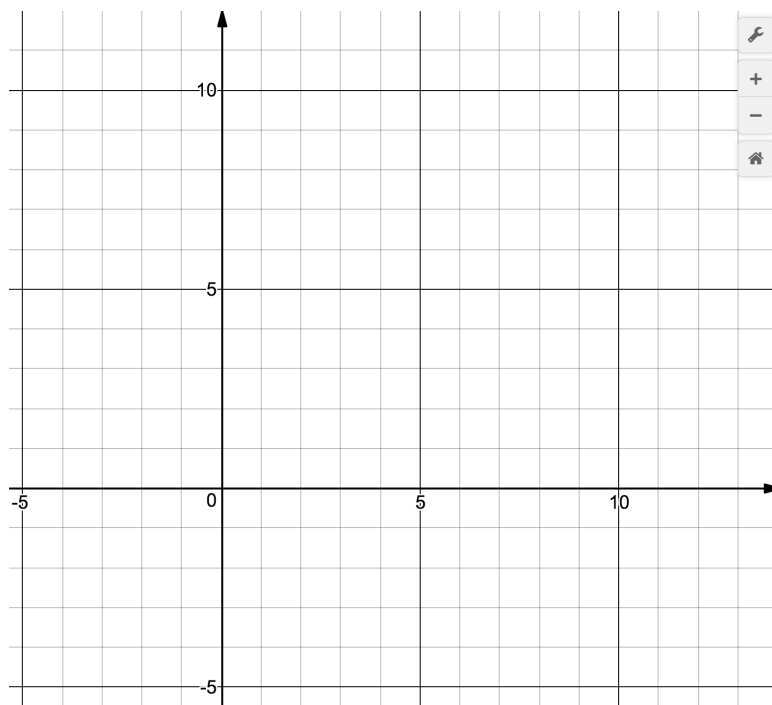
$f(x)$

Domain:_____

Range: _____

x (in)	y (out)

$f^{-1}(x)$

Domain:_____

Range: _____

(in) x	(out) y

Algebraic method

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

7. Using swapping x $\longleftrightarrow$ y method, find the formula for the inverse function.