

1. Circle the number of the transformation in function notation (see below) that matches the description of the transformations (a) - (e).

a) $f(x)$ translated right 3	1	2	3	4	5	6	7	8
b) $f(x)$ translated up 3	1	2	3	4	5	6	7	8
c) $f(x)$ translated down 3 and right 2	1	2	3	4	5	6	7	8
d) $f(x)$ translated down 3 and left 2	1	2	3	4	5	6	7	8
e) $f(x)$ reflected in the y-axis	1	2	3	4	5	6	7	8
f) $f(x)$ reflected in the x-axis	1	2	3	4	5	6	7	8

1. $y = f(-x)$ 2. $y = -f(x)$ 3. $y = f(x-3)$ 4. $y = f(x+3)$
 5. $y = f(x)+3$ 6. $y = f(x-2)-3$ 7. $y = f(x+2)-3$ 8. $y = f(x-3)-2$

2. State whether each relation below represents a function. Explain your reasoning. (Vertical line test is ONLY a valid reason if you provide a graph) Also, determine the domain and range for each relation.

- | | | | |
|--------------------------------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------|
| a) $\{(1, 2), (2, 3), (2, -1), (4, -1)\}$ | b) $y = x$ | c) $x = -5$ | d) $y = 7$ |
| <input type="checkbox"/> Is a function | <input type="checkbox"/> Is a function | <input type="checkbox"/> Is a function | <input type="checkbox"/> Is a function |
| <input type="checkbox"/> Is not a function | <input type="checkbox"/> Is not a function | <input type="checkbox"/> Is not a function | <input type="checkbox"/> Is not a function |
| Reasoning: | Reasoning: | Reasoning: | Reasoning: |

- | | | |
|--------------------------------------------|--------------------------------------------|--------------------------------------------|
| d) $x^2 + y^2 = 49$ | e) $y = (x+3)^2 + 4$ | f) $f(x) = \sqrt{x+1}$ |
| <input type="checkbox"/> Is a function | <input type="checkbox"/> Is a function | <input type="checkbox"/> Is a function |
| <input type="checkbox"/> Is not a function | <input type="checkbox"/> Is not a function | <input type="checkbox"/> Is not a function |
| Reasoning: | Reasoning: | Reasoning: |

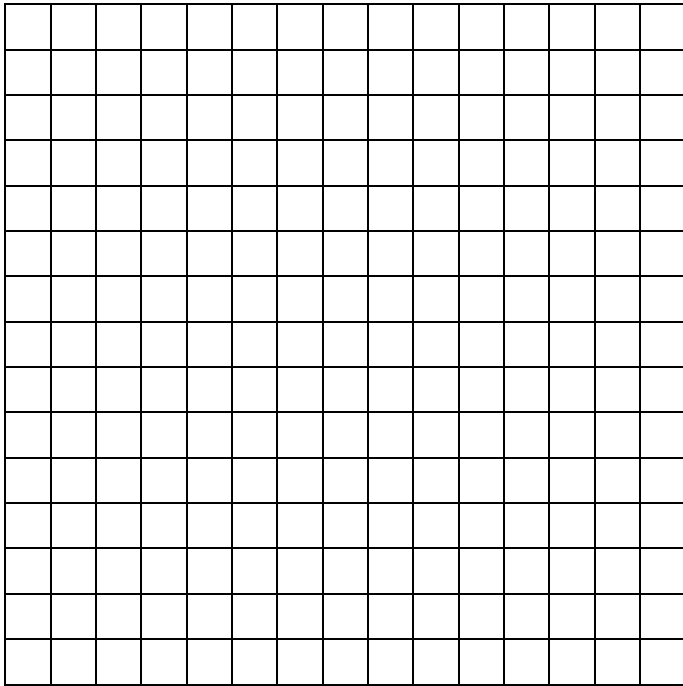
3. Given $f(x) = 5 - 4x$, find

- a) $f(2)$ b) $-f(3)$ c) x when $f(x) = 10$

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

a) Determine the new image equation if $y = f(x+2) - 4$.

b) Sketch a graph of $f(x) = \sqrt{x+1}$ and $y = f(x+2) - 4$ on the same grid.
Label each curve.



c) State the domain and range of the original image, $f(x) = \sqrt{x+1}$ and the transformed image, $y = f(x+2) - 4$.

Original Image

D: { _____ }

R: { _____ }

Transformed Image

D: { _____ }

R: { _____ }

d) If the original image, $f(x) = \sqrt{x+1}$ was transformed to $y = f(-x)$ state its new domain and range.

D: { _____ }

R: { _____ }

5. If $f(x) = \frac{1}{x-2} + 5$, state the domain, range and the equations of the asymptotes.

Vertical Asymptote: _____

Horizontal Asymptote: _____

D: { _____ }

R: { _____ }