

In order to properly prepare yourself for the next unit test, complete

1. all the questions on this review sheet
2. the corrections on your last quiz & the old tests on the course web-site
3. If more review is needed, check web-site or textbook (pp. 246 – 253 #1-46)

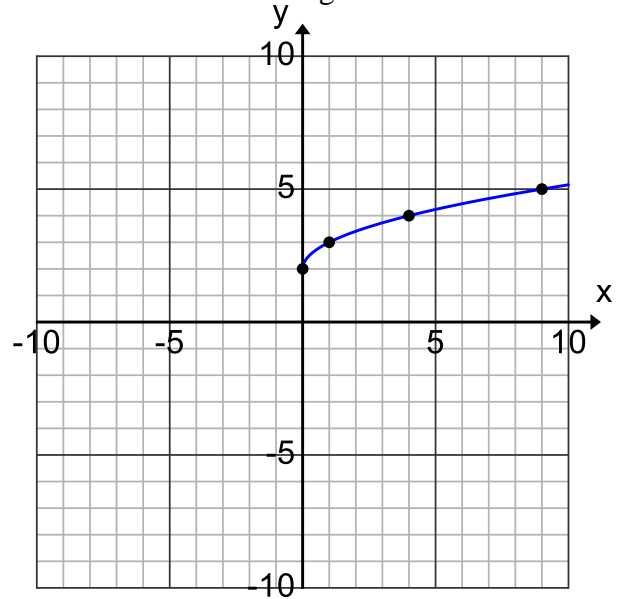
1. The graph of  $y = f(x)$  is shown. List the transformations and sketch the following functions.

a)  $y = f(x) + 3$

b)  $y = -0.5f(x) - 1$

c)  $y = f\left(-\frac{1}{2}x\right)$

d)  $y = -2f(-x)$



2. Describe how the graph of each of the following functions can be obtained from the graph of  $y = f(x)$ .

a)  $y = f(x - 2) - 3$

b)  $y = -f(x + 5) - 1$

c)  $y = 4f\left(-\frac{1}{5}x\right) + 5$

d)  $y = 2f(-2x + 2) - 4$

3. The graph of  $y = x^2$  is expanded vertically by a factor of 2, translated 3 units to the left, and translated 4 units upward. Write the equation of the transformed function, and state its domain and range.

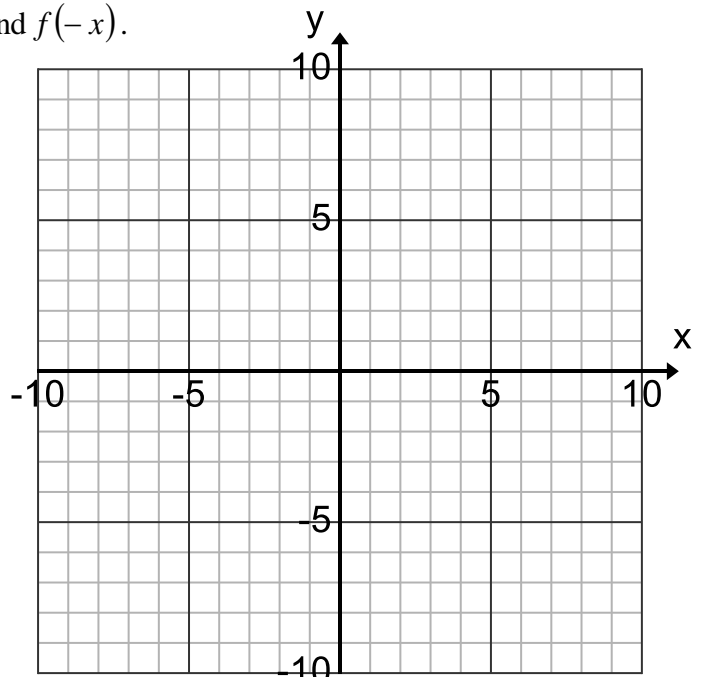
4. The graph of  $f(x) = \frac{1}{x}$  is compressed horizontally by a factor of  $\frac{1}{2}$  (compressed horizontally by 2), reflected in the  $x$ -axis, and translated 4 units to the left. Write the equation of the transformed function, and state its domain and range.

5. a) Given  $f(x) = x^2 - 4x + 5$ , write equations for  $-f(x)$  and  $f(-x)$ .

b) Sketch the three graphs on the same set of axes.

c) Determine any points that are invariant for each function.

d) State the domain and range of each of the three functions.



6. The point  $(4, -5)$  lies on the graph of  $h(x)$ . Determine the new coordinate of the transformed function,  $y = 3h(-2x - 6) + 1$ .

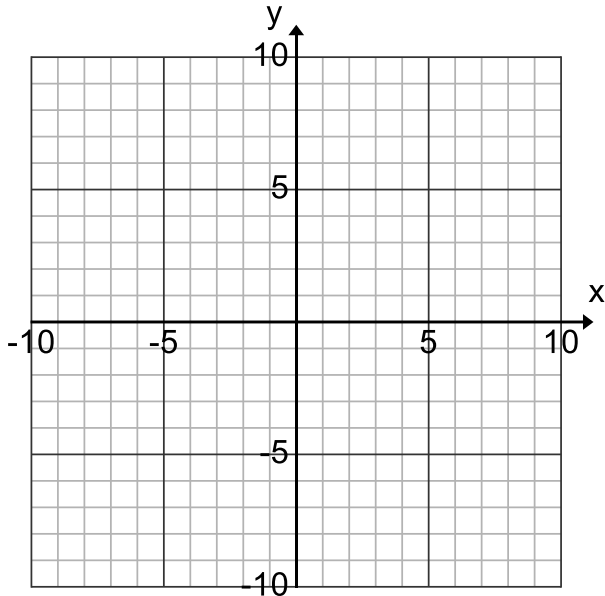
7.

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

- i) Write the image equation for the transformation:  $y = f(x-2) + 4$

- ii) State the domain and range of each function.

- iii) Graph both functions on the same grid.

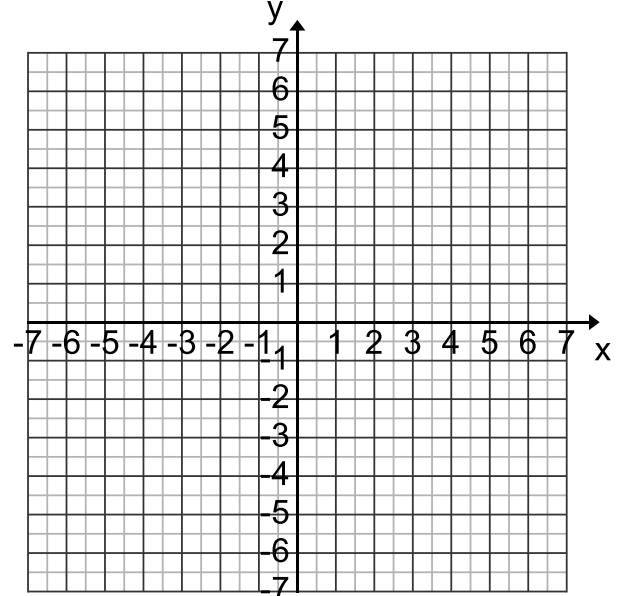


c) Given:  $f(x) = \frac{1}{x+1}$

- i) Write the image equation for the transformation:  $y = f(x+1)$

- ii) State the domain and range of each function.

- iii) Graph both functions on the same grid.

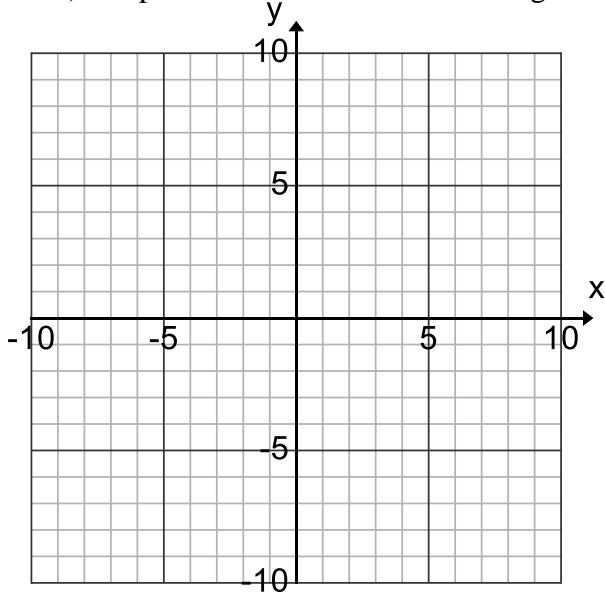


b) Given:  $f(x) = \sqrt{x} - 1$

- i) Write the image equation for the transformation:  $y = f(x-3) + 2$

- ii) State the domain and range of each function.

- iii) Graph both functions on the same grid.



d) Given:  $f(x) = \frac{1}{x} + 2$

- i) Write the image equation for the transformation:  $y = f(x-3) + 4$

- ii) State the domain and range of each function.

- iii) Graph both functions on the same grid.

