

4. [11 points]

- a. [5 points] Suppose that  $f(y)$  is **odd** and is **periodic** of period 8 with domain  $(-\infty, \infty)$ . Some of its values are given in the table below.

$y$	0	1	2	3	4	5	6
$f(y)$	?	1.3	?	-2.9	?	?	2.2

Find the following values of  $f$ . If it is not possible to find the value specified using the information given, write NOT POSSIBLE. *You do not have to show any work for this problem.*

(i)  $f(0) =$  \_\_\_\_\_

(ii)  $f(-1) =$  \_\_\_\_\_

(iii)  $f(2017) =$  \_\_\_\_\_

(iv)  $f(2) =$  \_\_\_\_\_

(v)  $f(4) =$  \_\_\_\_\_

- b. [6 points] Suppose that  $q(x) = 3e^{(x-5)^2}$  and  $r(x) = e^{x^2/4}$ . List the transformations you need to apply to the graph of  $y = r(x)$  to transform it to that of  $y = q(x)$ . Fill each space with either a number or one of the phrases below, as appropriate.

- |  |   |                                   |                                     |
|--|---|-----------------------------------|-------------------------------------|
| SHIFT IT<br>HORIZONTALLY<br>TO THE RIGHT | SHIFT IT<br>HORIZONTALLY<br>TO THE LEFT | SHIFT IT<br>VERTICALLY<br>UPWARDS | SHIFT IT<br>VERTICALLY<br>DOWNWARDS |
| COMPRESS IT<br>HORIZONTALLY              | STRETCH IT<br>HORIZONTALLY              | COMPRESS IT<br>VERTICALLY         | STRETCH IT<br>VERTICALLY            |

To get the graph of  $y = q(x)$  starting with the graph of  $y = r(x)$ ,

first, we \_\_\_\_\_ by \_\_\_\_\_,

and then we \_\_\_\_\_ by \_\_\_\_\_,

and then we \_\_\_\_\_ by \_\_\_\_\_.