

Worksheet: Vertical and horizontal shifts

Name: _____ Class: _____

1. Complete the following tables using $f(x) = x^2 + x - 2$ and $g(x) = f(x-1)$, $h(x) = f(x+2)$, $k(x) = f(x) - 3$ and $p(x) = f(x+1) + 4$. Describe each translation.

x	-3	-2	-1	0	1	2	3
$f(x)$							

x	-3	-2	-1	0	1	2	3
$g(x)$							

x	-3	-2	-1	0	1	2	3
$h(x)$							

x	-3	-2	-1	0	1	2	3
$k(x)$							

x	-3	-2	-1	0	1	2	3
$p(x)$							

2. Complete the following tables using $f(m) = 3^m$ and $g(m) = f(m) + 1$, $h(m) = f(m) - 2$ and $k(m) = f(m-1)$. Describe each translation.

m	-3	-2	-1	0	1	2	3
$f(m)$							

m	-3	-2	-1	0	1	2	3
$g(m)$							

m	-3	-2	-1	0	1	2	3
$h(m)$							

m	-3	-2	-1	0	1	2	3
$k(m)$							

Write a formula and sketch the graph of the translations of $f(x) = -2x^2$.

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

4. $y = f(x + 3)$

5. $y = f(x - 2) + 1$

6. $y = f(x + 1) - 1$

Write a formula and sketch the graph of the translations of $f(x) = 2^x$.

7. $y = f(x) - 2$

8. $y = f(x + 1)$

9. $y = f(x - 1) + 3$

10. $y = f(x - 2) + 2$