Vertical & Horizontal Translations II (1.1)

p13 day 2

hw

5. For each transformation, identify the values of h and k. Then, write the equation of the transformed functi in the form $y - k = f(x - h)$.
   a) $f(x) = \frac{1}{x}$, translated 5 units to t and 4 units up
   b) $f(x) = x^3$, translated 8 units to t and 6 units up
   c) $f(x) = |x|$, translated 10 units tc right and 8 units down
   d) $y = f(x)$, translated 7 units to tl and 12 units down

9. The graph of the function $y = x^2$ is translated 4 units to the left and 5 units up to form the transformed function $y = g(x)$.
   a) Determine the equation of the function $y = g(x)$. $Y=(x+4)^2+5$
   b) What are the domain and range of the image function?
   c) How could you use the description of the translation of the function $y = x^2$ to determine the domain and range of the image function?

$Y=g(x+4)+5$

6. What vertical translation is applied to $y = x^2$ if the transformed graph passes through the point (4, 19)?
7. What horizontal translation is applied to $y = x^2$ if the translation image graph passes through the point (5, 16)?

8. Copy and complet

Translation	Transfo Func
vertical	$y = f(x)$
	$y = f(x$
	$y = f(x$
	$y = f(x)$
horizontal and vertical	$y + 9 =$
horizontal and vertical	
horizontal and vertical	$y = f(x$

Vertical & Horizontal Translations II (1.1)

p13 day 2

ex1: Write the new function f(x) if it is translated:

a) 4 down $Y=f(x)-4$

b) 3 left $Y=f(x+3)$

c) 7 up and 2 right $Y=f(x-2)+7$

d) 5 left and 3 up $Y=f(x+5)+3$

Vertical & Horizontal Translations II (1.1)

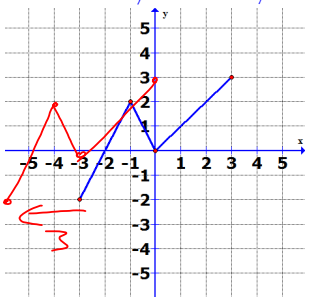
p13 day 2

ex2: Given y=f(x), graph y=f(x+3).

table

x	y
-3	-2
-1	2
0	0
3	3

x+3	y
-6	-2
-4	2
-3	0
0	3



Write in mapping notation.

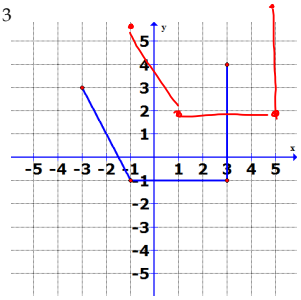
$(x,y) \to (x-3, y)$

Vertical & Horizontal Translations II (1.1)

p13 day 2

ex3: Given y=f(x), graph y=f(x - 2) + 3

right 2
up 3



Write in mapping notation.

$(x,y) \to (x+2, y+3)$

Vertical & Horizontal Translations II (1.1)

p13 day 2

ex4: Write in mapping notation.

a) y=f(x+3) - 5 $(x,y) \to (x-3, y-5)$

b) y=f(x)+10 $(x,y) \to (x, y+10)$

c) y=(x - 4)² - 3 $(x,y) \to (x+4, y-3)$

d) y=f(x - 1) $(x,y) \to (x+1, y)$

"maps to"

3, 4ab

$(x, y) \longrightarrow (x+h, y+k)$

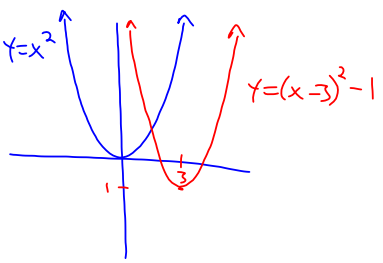
right h units; up k units

Vertical & Horizontal Translations II (1.1)

p13 day 2

ex5: Sketch y=x² and y=(x - 3)² - 1

3 right 1 down

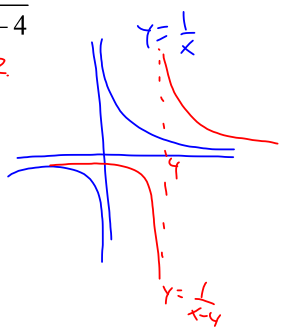


Vertical & Horizontal Translations II (1.1) p13 day 2

ex6: Sketch $y = \frac{1}{x}$ and $y = \frac{1}{x-4}$

4 right

horiz.

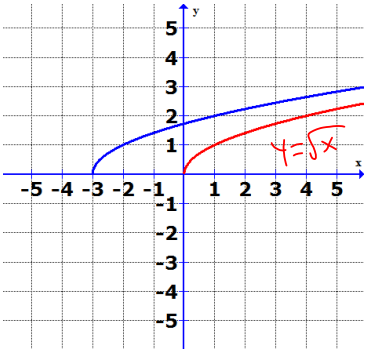


Vertical & Horizontal Translations II (1.1) p13 day 2

ex7: What is the equation of the translated graph?

horiz trans.
3 left

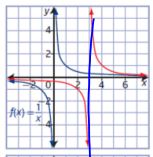
$Y = \sqrt{x+3}$



Vertical & Horizontal Translations II (1.1) p13 day 2

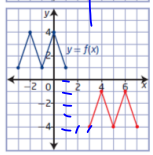
11. The graph of the function drawn in red is a translation of the original function drawn in blue. Write the equation of the translated function in the form $y - k = f(x - h)$.

a)



$Y = \frac{1}{x-3}$

b)



$Y = f(x-6) - 5$

12

Vertical & Horizontal Translations II (1.1) p13 day 2

HW: p13#11, 12, 15

right h units

$y = f(x - h) + k$

up k units

maps to

$(x, y) \longrightarrow (x+h, y+k)$

right h units up k units