

Function Transformation

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ANSWERS to HWK

9) f is a function because
passes the vertical line test

10) $\text{domain}(f)$

$$= \{x \mid x \neq -1, 1\}$$

11) $\text{range}(f) = (-\infty, 4]$

12) x -intercepts at $x = -6, 2$

13) y -intercept at $y = 3$

14) f inc at $(-\infty, -2)$

15) f dec at $(-2, \infty)$

16) rel. max of f at $x = -2$.

17) rel. max of f is $y = 4$.

18) $f(-4) = 3$

19) $f(x) = -2$ at $x = -7, 3$

20) $f(x) = 0$ at $x = -6, 2$

21) $f(x) > 0$ for x in $(-6, 2)$.

9 % of class

Divide the complex numbers

$$\frac{7 - 2i}{6 - 5i}$$

50 % of class

Solve the equation”

$$11x - 18 = 5x - 2(9 - 3x)$$

Horizontal Translation

Graph and label the following line on your white board: (make it dotted)

$$A: y = 2x$$

YOU HAVE 30 seconds.

Don't erase anything.

Horizontal Translation

Add the graph of the solid line on your white board:

$$A: y = 2x$$

$$B: y = 2(x - 1)$$

You have 50 seconds.

Don't erase.

Horizontal Translation

Add the graph of the dashed line on your white board:

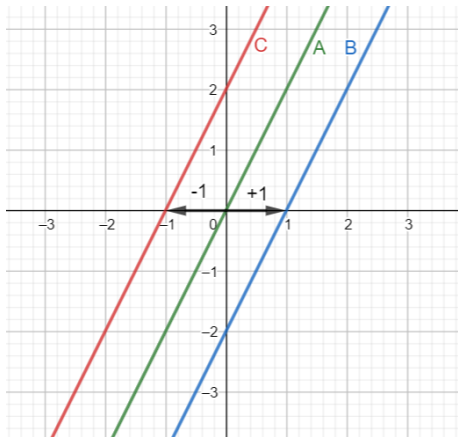
A: $y = 2x$

B: $y = 2(x - 1)$

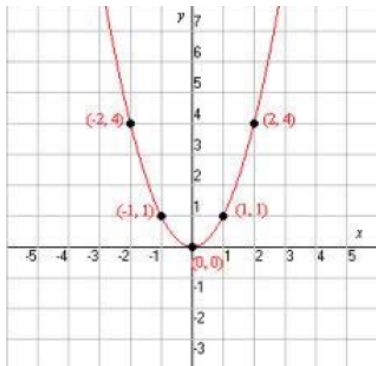
C: $y = 2(x + 1)$

Don't erase.

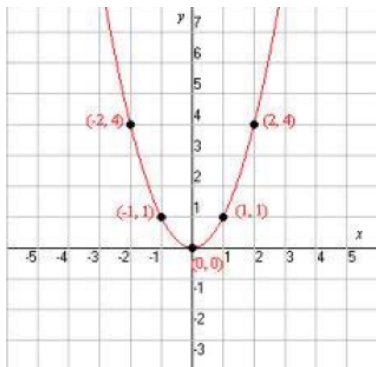
Describe the relationship between lines A, B, and C in terms of horizontal translations.



Name the function whose graph is shown below:



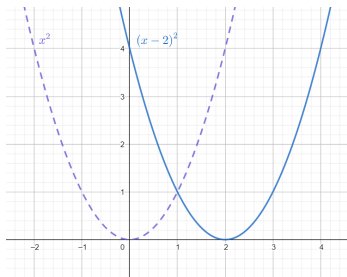
This is the graph of $f(x) = x^2$



Graph $(x - 2)^2$.

If you are unsure, plug in some points and plot them.

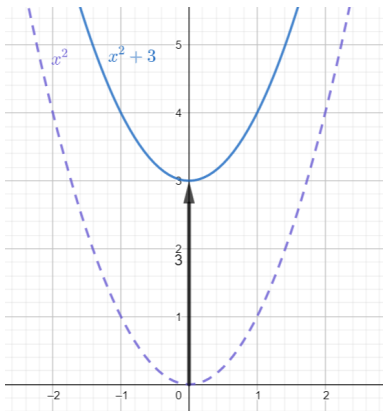
The graph of $(x - 2)^2$ with the graph of x^2 .



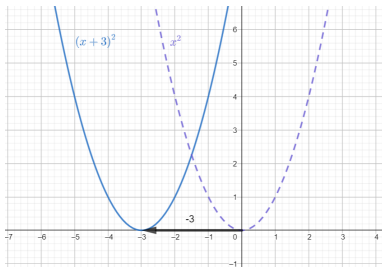
Graph $x^2 + 3$.

If you are unsure, plug in some points and plot them.

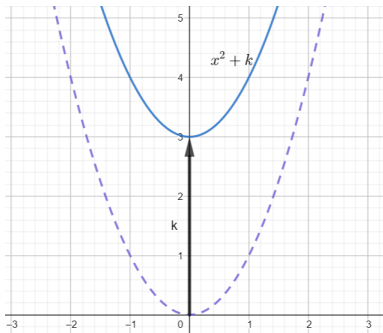
The graph of $x^2 + 3$ with the graph of x^2 .



The graph of $(x - h)^2$ is the graph of x^2 translated horizontally by h units.

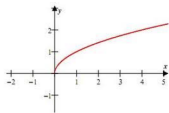


The graph of $x^2 + k$ is the graph of x^2 translated vertically by k units.

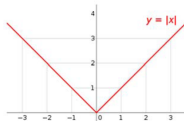


Here are some of the graphs of common functions:

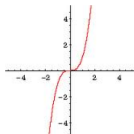
$$f(x) = \sqrt{x}$$



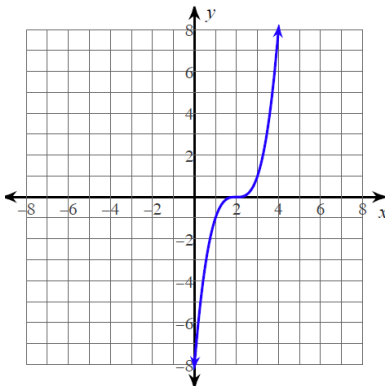
$$f(x) = |x|$$



$$f(x) = x^3$$



Is the graph below a translation of x^3 , x^2 , \sqrt{x} , or $|x|$?

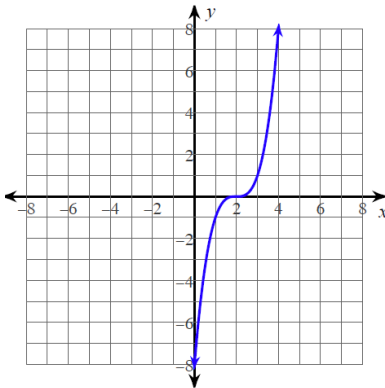


Which direction is it translated?

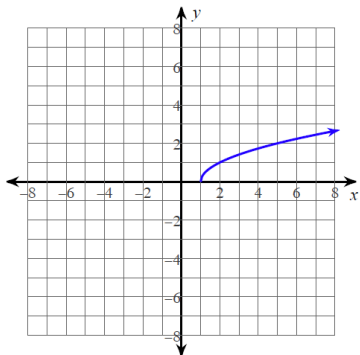
How many units?

(make sure to use positive or negative)

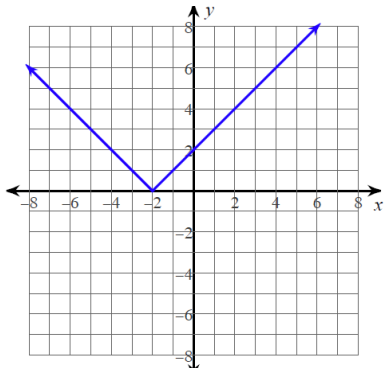
So the graph below is of the form $(x - \text{_____})^3$



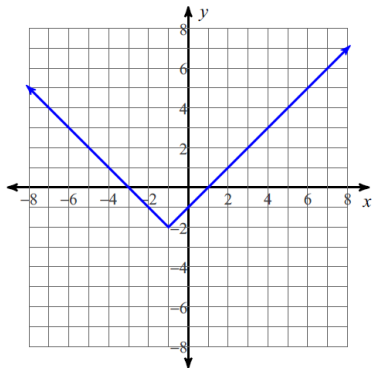
Find the function whose graph is shown below:



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