Graph transformations: translations

Exit ticket ANSWERS Name _____

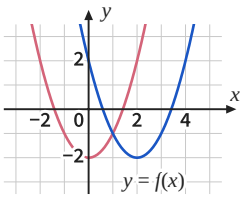
1. When x is −1, 0, 1 and 2, $f(x)$ is 4, 1, 0 and 1.
Work out $f(x) - 3$ for each one.

1, −2, −3, −2

2. P(2, 4) is on the graph of $y = f(x)$. Where is P on the graph of $y = f(x + 3)$?

(−1, 4)

3. The graph of $y = f(x)$ is drawn.
Sketch the graph of $y = f(x - 2)$.



The Maths Habit

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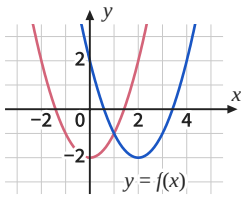

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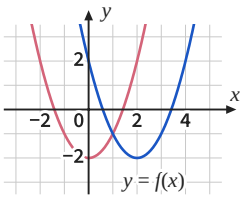

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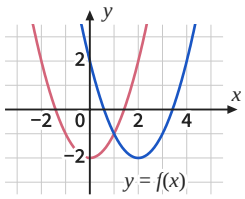

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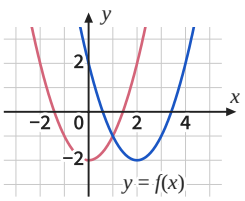

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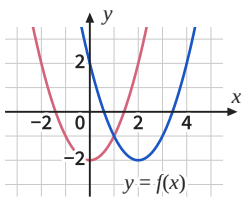


The Maths Habit

Exit ticket Graph transformations: translations

1 **When x is −1, 0, 1 and 2, $f(x)$ is 4, 1, 0 and 1. Work out $f(x) - 3$ for each one.**

1, −2, −3, −2

TESTS A table of values with every y changed: f(x) − 3

LOOK FOR *7, 4, 3, 4* 3 added, not taken away

−4, −3, −2, −1 3 taken off the x values, not the $f(x)$ values

FIX IT

$f(x) = x^2 + 1$. Work out $f(x) + 2$ when x is −2, −1, 0, 1 and 2. *7, 4, 3, 4, 7*

2 **P(2, 4) is on the graph of $y = f(x)$. Where is P on the graph of $y = f(x + 3)$?**

(−1, 4)

TESTS A point on y = f(x + a): inside the bracket, the opposite way

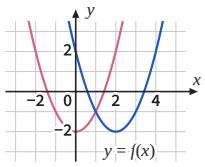
LOOK FOR *(5, 4)* moved right: inside the bracket goes the opposite way to the sign

(2, 7) the 3 added to y: inside the bracket changes x

FIX IT

P(3, −1) is on the graph of $y = f(x)$. Where is P on the graph of $y = f(x + 4)$? *(−1, −1)*

3 **The graph of $y = f(x)$ is drawn. Sketch the graph of $y = f(x - 2)$.**



moved right 2

TESTS Sketching y = f(x − a), the whole method

LOOK FOR *moved left 2* $x - 2$: the opposite way to the sign, so right

moved down 2 the − 2 is inside the bracket: left or right

FIX IT

(1, 5) is on $y = f(x)$. Where is it on $y = f(x - 3)$? *(4, 5)*