

How Does It Translate?

Teacher Notes

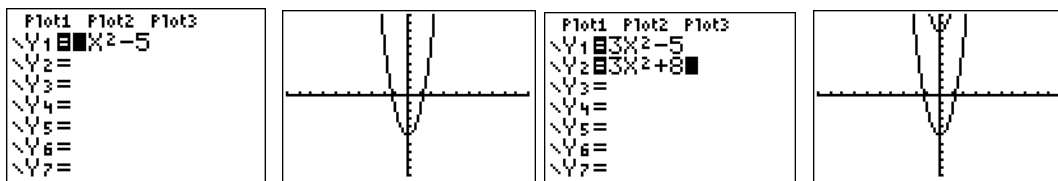
What is a translation? How do you know how a graph moves? Use what you know about the equations to answer these questions and use the graphing calculator to confirm your answer.

Look at the equation below.

- 16** How does the graph of $y = 3x^2 - 5$ compare with the graph of $y = 3x^2 + 8$?

Is it the added number or the multiplied number that changes? Predict how the graph changes?

The added number is changed which means the graph will move up from -5 to 8 which is 13 units



Use the graphing calculator to confirm your answer choice. Did the graph change as you predicted? Yes, G is the correct answer.

- F** The graph of $y = 3x^2 - 5$ is 3 units above the graph of $y = 3x^2 + 8$.
- G** The graph of $y = 3x^2 - 5$ is 13 units below the graph of $y = 3x^2 + 8$.
- H** The graph of $y = 3x^2 - 5$ is 3 units to the right of the graph of $y = 3x^2 + 8$.
- J** The graph of $y = 3x^2 - 5$ is 13 units to the left of the graph of $y = 3x^2 + 8$.

How Does It Translate?

Which equation would come from the translation describe below?

Answer G should be 4 units up

40 If the graph of $y = \frac{3}{4}x^2 - 1$ is translated up 4 units, which of the following equations represents the resulting graph?

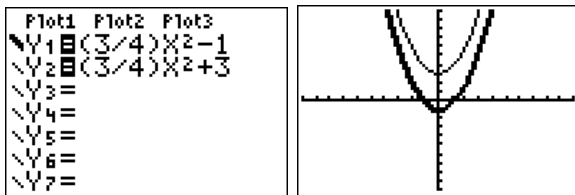
F $y = 3x^2 - 4$

G $y = \frac{3}{4}x^2 + 3$

H $y = 3x^2 + 4$

J $y = \frac{3}{4}x^2 - 5$

Use the graphing calculator to confirm your answer choice. Did the equation you selected translate as you predicted? yes



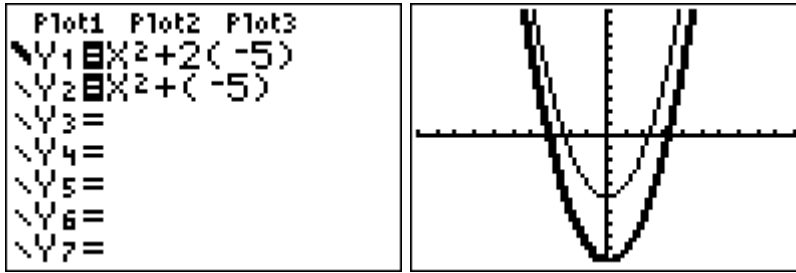
By highlighting the original graph, you can see that the new graph is up 4 units.

Predict the translation of the graph described below?

Use the graphing calculator to confirm you answer choice. Did the graph change as you predicted? _____

Students may need to be reminded that they can type the equations substituting -5 for c and not have to calculate new values.

How Does It Translate?



The graph of $y = x^2 + 2c$ is below the graph of $y = x^2 + c$ because -10 is below -5 on the y -axis.

- 36** If $c = -5$, how does the graph of $y = x^2 + 2c$ compare to the graph of $y = x^2 + c$?
- F** The graph of $y = x^2 + 2c$ is below the graph of $y = x^2 + c$.
 - G** The graph of $y = x^2 + 2c$ is above the graph of $y = x^2 + c$.
 - H** The graph of $y = x^2 + 2c$ is narrower than the graph of $y = x^2 + c$.
 - J** The graph of $y = x^2 + 2c$ is wider than the graph of $y = x^2 + c$.