

QUESTION 1



Choose the correct answer.

Bashar and Ahmed are comparing the graphs of the two functions

$$y = f(x) = 3(2x - 2)^2 + 4$$

and

$$y = g(x) = 2(3x - 3)^2 + 4$$

in order to deduce their graphs from a parent graph.

Bashar's work	Ahmed's work
$y = f(x) = 3(2x - 2)^2 + 4 = 6(x - 1)^2 + 4$ $y = g(x) = 2(3x - 3)^2 + 4 = 6(x - 1)^2 + 4$ Hence, the two graphs are identical and they could be both determined from the graph of $y = 6x^2$, by a translation of 1 unit to the right and 4 units up.	$y = f(x) = 3(2x - 2)^2 + 4$ $y = f(x) = 12(x - 1)^2 + 4$ $y = g(x) = 2(3x - 3)^2 + 4$ $y = g(x) = 18(x - 1)^2 + 4$ Thus, the graph of f could be deduced from the graph of $y = 12x^2$, by a shift of 1 unit to the left and 4 units up. While the graph of g could be deduced from the graph of $y = 18x^2$ by a shift of 1 unit to the left and 4 units up.

☐ Bashar's work is correct but Ahmed's work contain an error as he simplified the functions in a wrong way.

☐ Bashar's work is correct and Ahmed's work is correct as both graphs could be determined from the graph of $y = x^2$.

☐ Bashar's work is wrong as he transformed his function wrongly but Ahmed's work is correct.



Bashar's and Ahmed's works both contain an error. Bashar simplified the functions wrongly but he tranformed the graphs correctly, while Ahmed simplified the functions correctly and he tranformed the graphs in a wrong way.



QUESTION 2



Rewrite the function

$$y = x^2 - 10x + 16$$

in order to compare it to the graph of

$$y = x^2$$

.

$y =$

$$(x - 5)^2 - 9 \quad \checkmark \quad \vee$$

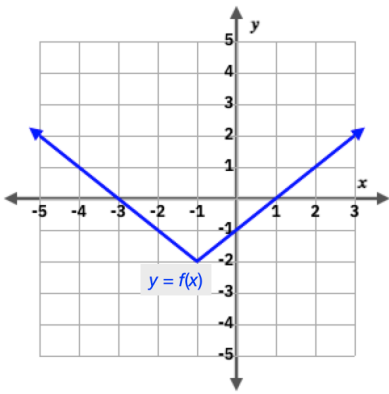
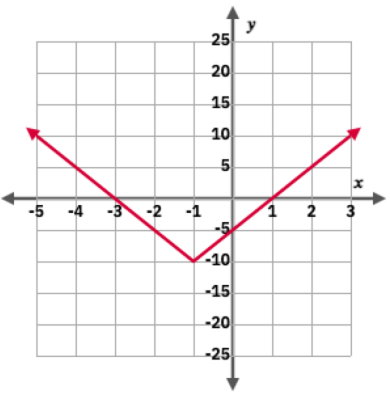
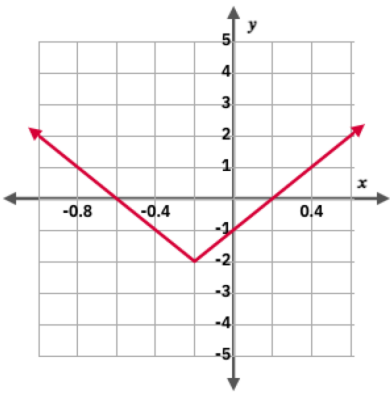
QUESTION 3



By using the graph of

$$y = f(x)$$

, drag and drop the correct function of each red graph.

		
$y = f(x)$	$y = 5f(x) \quad \checkmark$	$y = f(5x) \quad \checkmark$

$$y = f(x + 5)$$

$$y = \frac{1}{5} f(x)$$

$$y = f(x) + 5$$

QUESTION 4

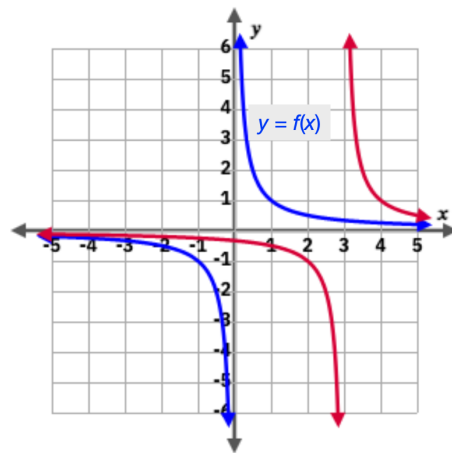


Choose the correct answer.

Use the graph of

$$y = f(x)$$

to choose the correct function for the red graph.



☐ $y = f(x + 3)$

☐ $y = f(x) + 3$

☒ $y = f(x - 3)$



☐ $y = f(x) - 3$

QUESTION 5



By completing the square, describe how to transform the graph of

$$y = x^2$$

, into the graph of

$$y = x^2 - 8x + 15$$

☐ $y = (x - 4)^2 + 1$

☒ $y = (x - 4)^2 - 1$

☒ The graph will be moved four units to the right and one unit down.

☐ $y = (x - 1)^2 - 4$

☐ The graph will be moved four units to the right and one unit up.

☐ The graph will be moved one unit to the right and four units down.

QUESTION 6



Drag and drop the correct answer into the space(s) provided.

Using the graph of

$$y = f(x)$$

, drag and drop the correct function of each red graph.

$y = f(x)$	$y = 6f(x)$	$y = 3f(x)$

$$y = f(3x)$$

$$y = 18f(x)$$

$$y = f(6x)$$

$$y = f(x) + 6$$

QUESTION 7



Drag and drop the correct answer into the space(s) provided.

Using the graph of

$$y = f(x)$$

, drag and drop the correct function for each red graph.

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

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

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

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

$$y = f(0.2x + 2) + 2$$

QUESTION 8

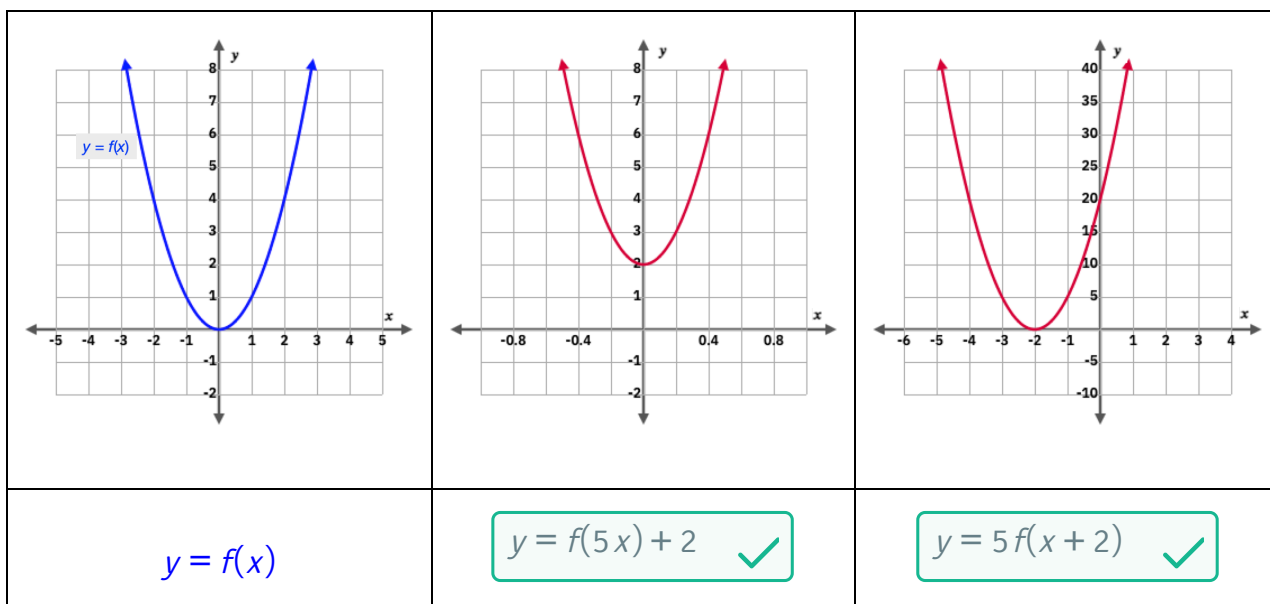


Drag and drop the correct answer into the space(s) provided.

Using the graph of

$$y = f(x)$$

, drag and drop the correct function for each red graph.



$$y = 2f(x + 5)$$

$$y = f(0.4x) + 2$$

$$y = 5f(x - 2)$$

$$y = f(0.4x + 2)$$

$$y = f(5x) - 2$$

QUESTION 9

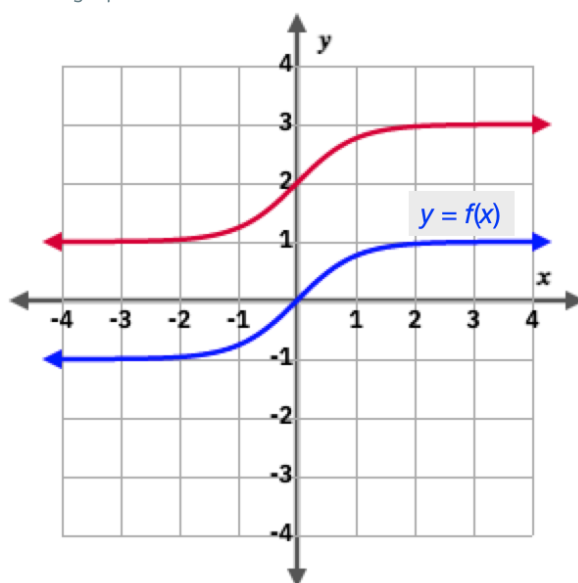


Choose the correct answer.

Use the graph of

$$y = f(x)$$

to choose the correct function for the red graph.



☐ $y = f(x + 2)$

☐ $y = f(x) - 2$

☐ $y = f(x - 2)$

☒ $y = f(x) + 2$



QUESTION 10



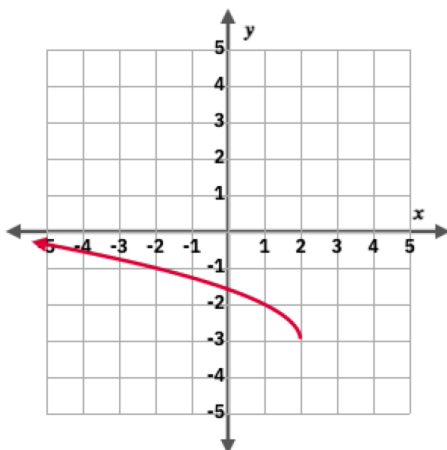
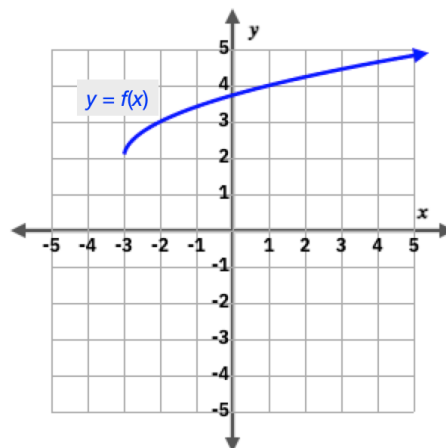
Choose the correct answer.

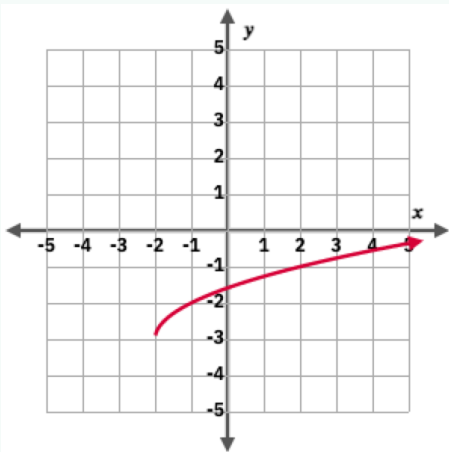
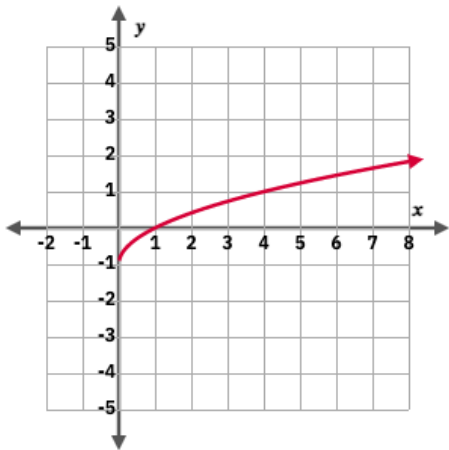
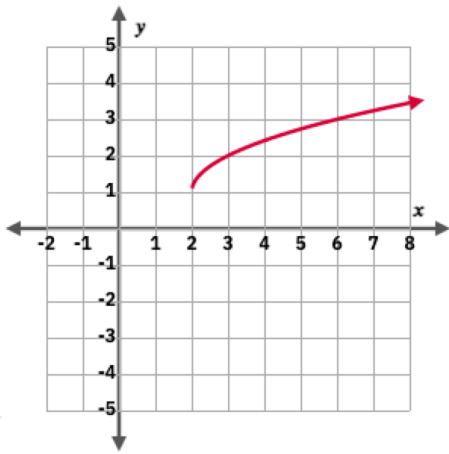
Use the graph of

$$y = f(x)$$

to choose the graph of

$$y = f(x - 1) - 5$$





QUESTION 11



Drag and drop the correct answer into the space(s) provided.

The figure shows two congruent graphs, one of them has the equation

$$y = f(x) = 3x^2$$

The second graph represents the function

$$y = g(x) =$$

$$3x^2 - 12x + 13 \checkmark.$$

The graph of

g

could be obtained from the graph of

f

by a shift of

1 unit up and 2 units to the right $\checkmark$.

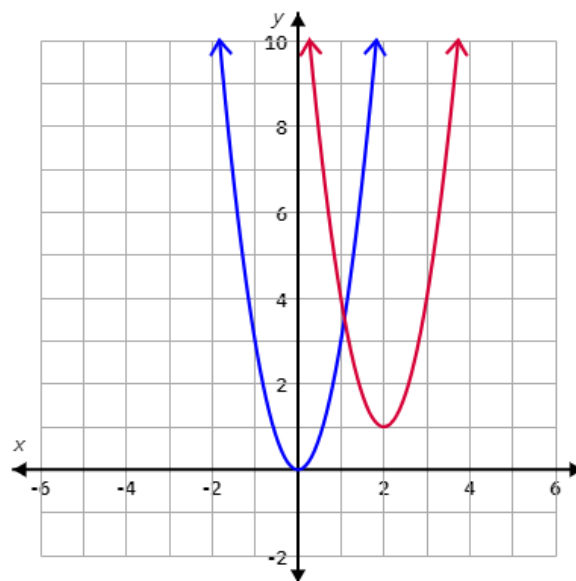
$$3(x - 2)^2 - 1$$

1 unit down and 2 units to the left

$$3(x + 2)^2 - 1$$

1 unit down and 2 units to the right

$$3x^2 + 12x + 13$$



QUESTION 12



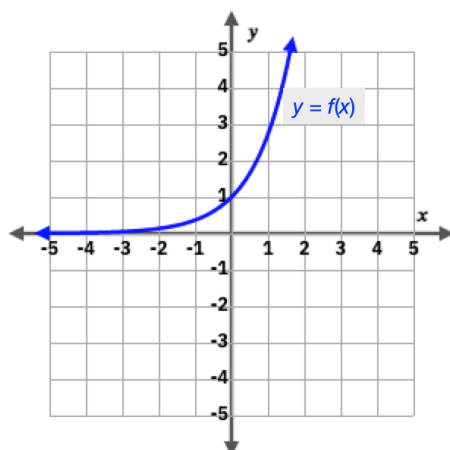
Choose the correct answer.

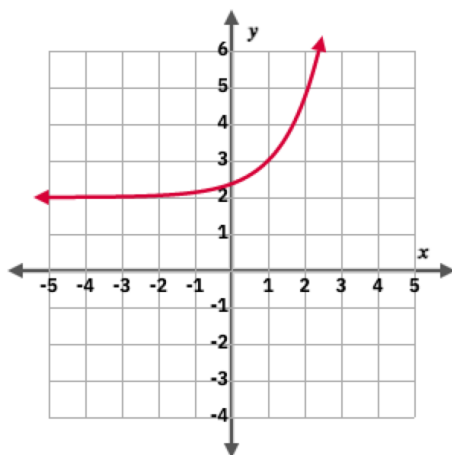
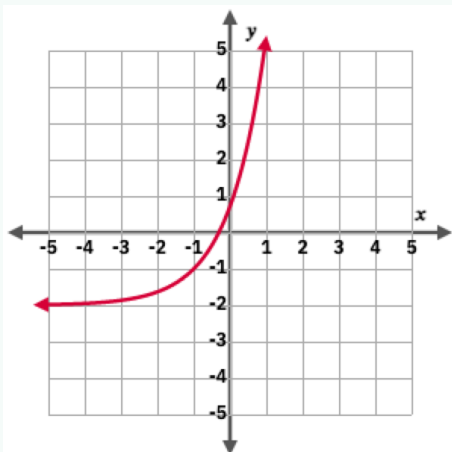
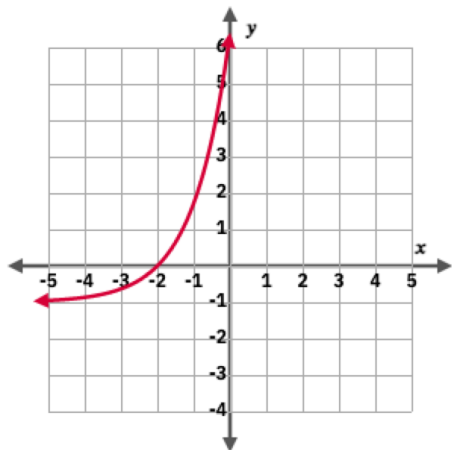
Use the graph of

$$y = f(x)$$

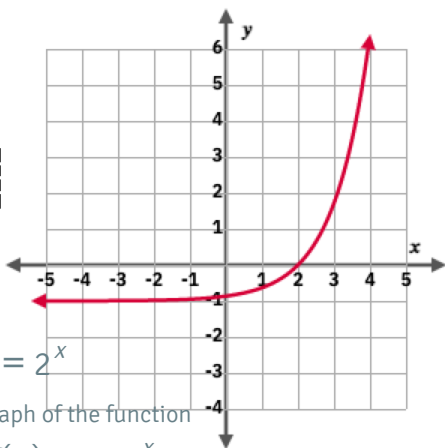
to choose the graph of

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





QUES



Given

$$g(x) = 2^x$$

, the graph of the function

$$y = f(x) = 2 \cdot 2^x + 2$$

, could be obtained in which of the following methods?

☐

Graph the function

$$y = 2^x$$

, shift the graph 2 units to the right and divide the scale on the y -axis by 2.

☐

Graph the function

$$y = 2^x$$

, shift the graph 2 units to the left and 1 unit up.

☒

Graph the function

$$y = 2^x$$

, shift the graph 1 unit to the left and 2 units up.


☐

Graph the function

$$y = 2^x$$

, shift the graph 2 units to the left and divide the scale on the y -axis by 2.

☒

Graph the function

$$y = 2^x$$

, shift the graph 1 unit up then multiply the scale on the y -axis by 2.



QUESTION 14



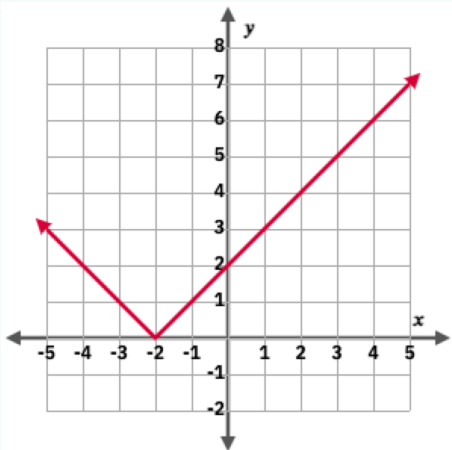
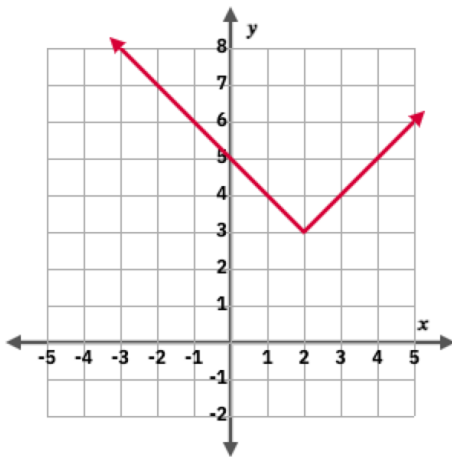
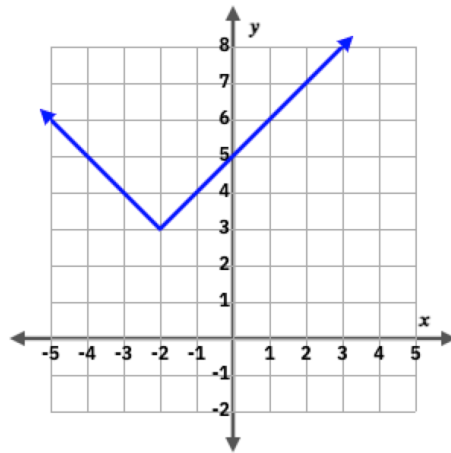
Choose the correct answer.

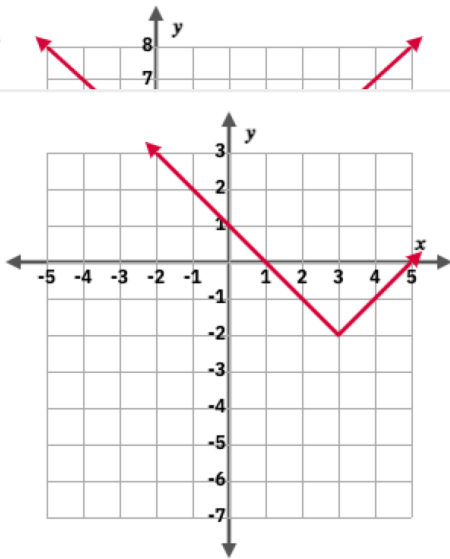
Use the graph of

$$y = f(x)$$

to choose the graph of

$$y = f(x) - 3$$





QUESTION 15



Choose the correct answer.

Use the graph of

$$y = f(x)$$

to choose the graph of

$$y = f(x - 5)$$

