

We now continue to investigate the relationship between equations and graphs using functions other than linear functions; functions you are less familiar with or maybe not familiar with at all.

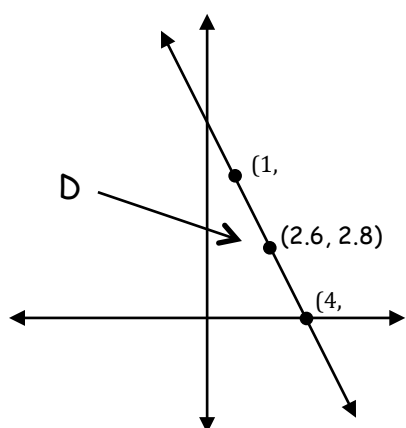
Consider the following 10 functions:

$f(x) = 3(x + 5)(x - 2)$	$f(x) = x^2 - 2x - 8$	$f(x) = 2 \cdot 3^x$	$f(x) = \frac{7x+5}{2}$
$f(x) = -2x + 8$	$f(x) = x^2 - x - 12$	$f(x) = 5 \cdot 2^x$	$f(x) = 3 \cdot 2^x$
$f(x) = -2(x - 4)(x + 2)$	$f(x) = 2x + 4$		

The pages that follow show the graphical representations of 6 of the functions in the table above. For each of the 6 graphs:

- Identify which function (from the list above) matches the given graph. Write your answer in the box that appears below the graph.
- Use 2 of the points shown on the graph to **justify your match**.
- Answer the follow up question (in the box below the “justify your match” box).
- Your answer to part C (the “follow-up question”) will represent an additional point for the graph. Add this point to the appropriate location on the graph.

For example:



$f(x) = -2x + 8$

A

B.

Justify your match:

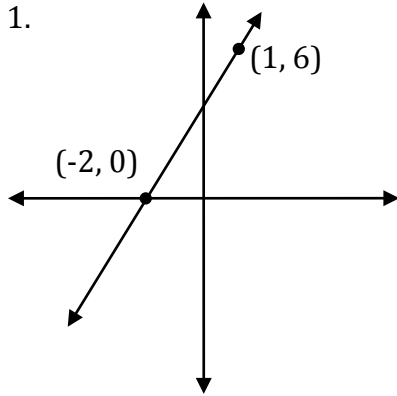
$f(1) = -2(1) + 8$	$f(4) = -2(4) + 8$
$f(1) = -2 + 8$	$f(4) =$
$f(1) = 6$	$f(4) =$
$(1, 6) \checkmark$	$(4, \quad) \checkmark$

C.

Follow-Up Question:
 What is the value of f when $x = 2.6$?

$f(2.6) = -2(2.6) + 8$
 $f(2.6) = -5.2 + 8$
 $f(2.6) = 2.8$

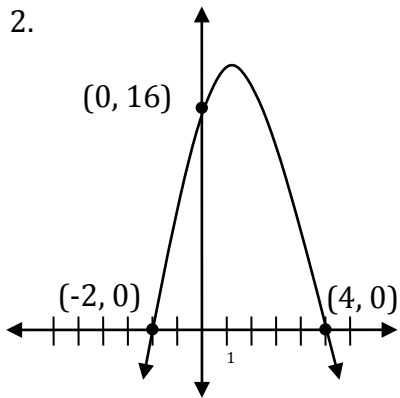
Notice that you need to use the equation to answer this question because this exact value is not observable from the given graph.



Justify your match:

Follow-Up Question:
 What is the y-intercept for this linear function? (Remember, the y-intercept is always the y-value when x is zero.)

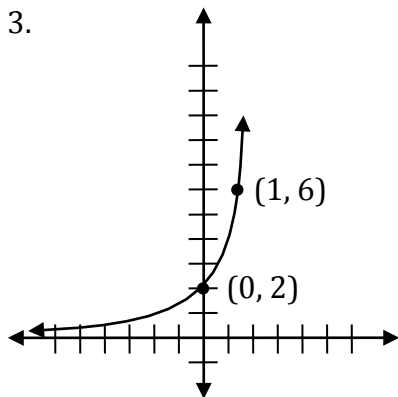
$f(x) =$



Justify your match:

Follow-Up Question:
 This curve (called a parabola) reaches its maximum height at $x=1$.
 What is this maximum height?

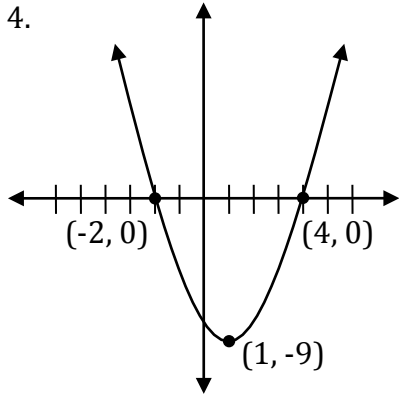
$f(x) =$



Justify your match:

Follow-Up Question:
 What is the value of $f(-2)$?

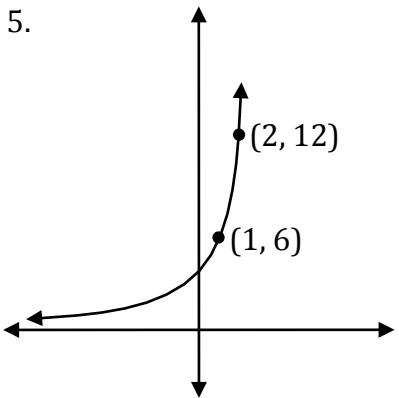
$f(x) =$



$f(x) =$

Justify your match:

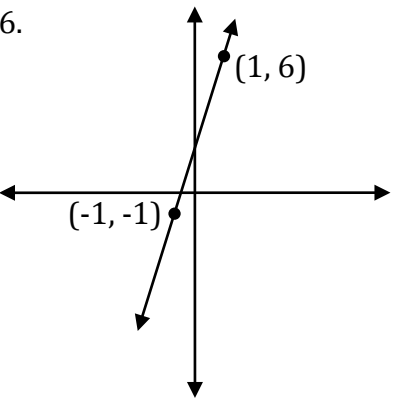
Follow-Up Question:
 What is the y-intercept for this parabola?



$f(x) =$

Justify your match:

Follow-Up Question:
 What is the y-intercept for this function?



$f(x) =$

Justify your match:

Follow-Up Question:
 What is the y-intercept for this linear function?