DEPARTMENT OF EDUCATION

PAWS
Mathematics
Grade 8

Released Items
With Data

Functions

Mathematics Released Items with Data
Introduction Page / Data Definitions

This Released Items with Data document provides a subset of items from the 2015 administration of the PAWS test. The data for an item is on the page that follows that item. The following provides definitions for the data fields on the data page.

Item Information

Title: Title of the passage/stimulus the item belongs to

2012 WyCPS Domain: The reporting category of the state content standards

2012 WyCPS Standard: State content standard

Item Code: Identification code assigned to the item

Admin: The year an item is administered

Item Type: The mode in which a student responds (MC means multiple-choice)

Correct Answer: The option letter (A, B, C, or D) that corresponds to the correct answer

Item Dok: The item's Depth of Knowledge designation, also called Cognitive Complexity;
1 - Recall and reproduction
2 - Skills and concepts
3 - Strategic and extended thinking

Total N-count: Number of students counted as taking the test in which the item appears during the listed administration (Includes item omissions)

Pvalue/Mean Score: For a multiple-choice item, the percent of students choosing the correct answer

Score Analysis

MC Row: Answer options available for students to choose from (including those who do not choose any option); an asterisk designates the correct answer

%Choosing Row: Percent of students choosing an option (or omitting)

Item Notes: Area where user can make notes

00 **Two functions are given, one as a verbal description and one as an equation.**

Function 1
The perimeter of a square, y, is equal to the length of one side of the square, x, times 4.

Function 2
$y = 2x + 5$

Which of the following can be concluded about the two functions?

A) The rate of change for Function 1 is less than the rate of change for Function 2.

B) The rate of change for Function 1 is greater than the rate of change for Function 2.

C) For all positive inputs of x, the output for Function 1 is less than the output for Function 2.

D) For all positive inputs of x, the output for Function 1 is greater than the output for Function 2.

Item Information	
2012 WyCPS Domain:	Functions
2012 WyCPS Cluster:	Define, evaluate, and compare functions.
2012 WyCPS Standard:	8.F.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.
Item Code:	VF492360

Admin:	Item Type:	Correct Answer:	Item Dok:	Total N-count:	Pvalue/Mean Score:
Spring 2013	MC	B	2	672	0.345

Score Analysis					
MC	**A**	**B***	**C**	**D**	**Omit**
%Choosing	17.113	34.524	28.274	19.792	0.298

00 **Two quadratic functions are shown. Function 1 is represented algebraically and Function 2 is represented by a table.**

Function 1

$y = x^2 - x + 2$

Function 2

x	y
−1	−9
0	−3
1	−1
2	−3
3	−9

Which statement is true about Function 1 and Function 2?

A) Function 1 has a y-intercept that is less than the y-intercept of Function 2.

B) Function 1 has a y-intercept that is greater than the y-intercept of Function 2.

C) Function 1 is always increasing for all values of x, and Function 2 is always decreasing for all values of x.

D) Function 1 is always decreasing for all values of x, and Function 2 is always increasing for all values of x.

Item Information	
2012 WyCPS Domain:	Functions
2012 WyCPS Cluster:	Define, evaluate, and compare functions.
2012 WyCPS Standard:	8.F.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.
Item Code:	VF866220

Admin:	Item Type:	Correct Answer:	Item Dok:	Total N-count:	Pvalue/Mean Score:
Spring 2014	MC	B	2	652	0.379

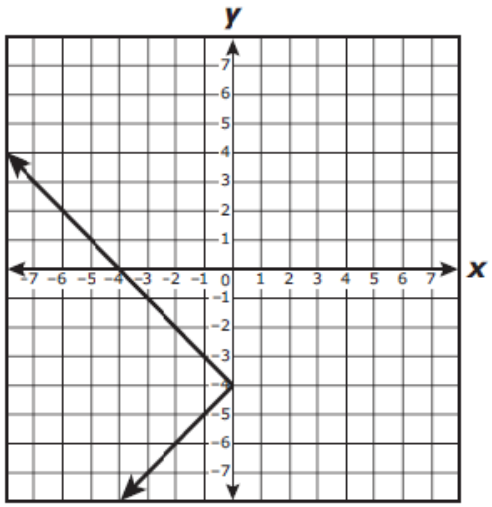
Score Analysis					
MC	**A**	**B***	**C**	**D**	**Omit**
%Choosing	16.718	37.883	23.313	21.933	0.153

00 **These features describe a function.**

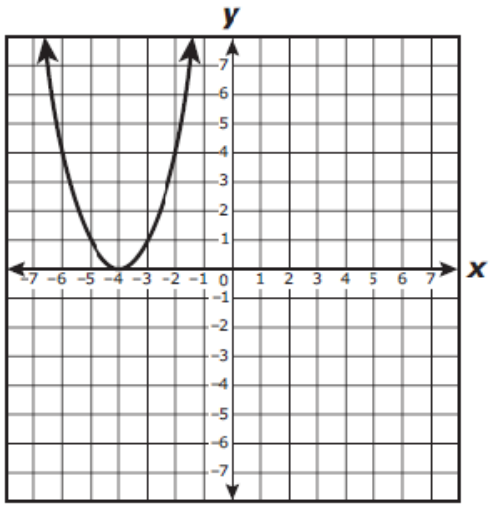
- **It is nonlinear.**
- **It is increasing for all values of $x < -4$.**
- **It is decreasing for all values of $x > -4$.**

Which graph best displays these features?

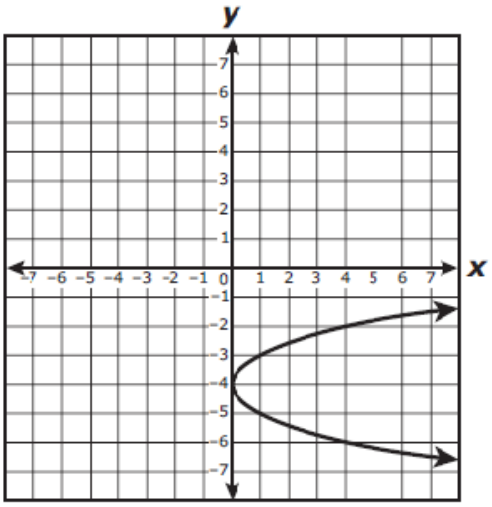
A)



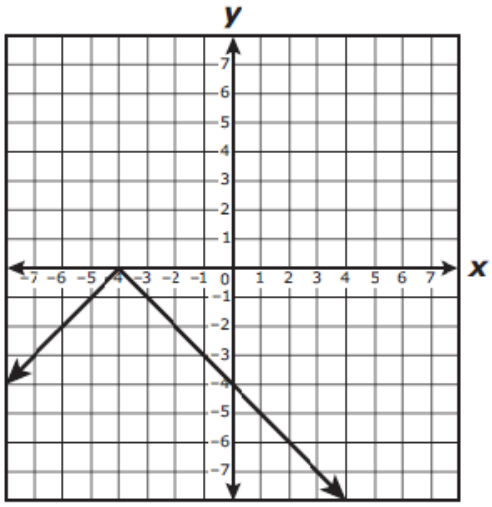
C)



B)



D)



Item Information	
2012 WyCPS Domain:	Functions
2012 WyCPS Cluster:	Use functions to model relationships between quantities.
2012 WyCPS Standard:	8.F.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
Item Code:	VF804282

Admin:	Item Type:	Correct Answer:	Item Dok:	Total N-count:	Pvalue/Mean Score:
Spring 2014	MC	D	2	652	0.294

Score Analysis					
MC	**A**	**B**	**C**	**D***	**Omit**
%Choosing	27.454	19.172	23.466	29.448	0.46

00 **Four functions are shown.**

Function 1	Function 2	Function 3	Function 4
$y = 9 + 5$	$y = \frac{1}{2}x\ (x + 6)$	$y = 3x + 7x$	$y = \frac{1}{4}\ (x + 8)$

Which statement is true?

A) Only Function 1 is not linear.

B) Only Function 2 is not linear.

C) Both Function 2 and Function 3 are not linear.

D) Both Function 2 and Function 4 are not linear.

Item Information	
2012 WyCPS Domain:	Functions
2012 WyCPS Cluster:	Define, evaluate, and compare functions.
2012 WyCPS Standard:	8.F.3 Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function A = s^2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.
Item Code:	VH146829

Admin:	Item Type:	Correct Answer:	Item Dok:	Total N-count:	Pvalue/Mean Score:
Spring 2015	MC	B	1	655	0.137

Score Analysis					
MC	**A**	**B***	**C**	**D**	**Omit**
%Choosing	31.756	13.74	21.985	32.519	0

00 **Sellina wants to participate in a training program. The training program consists of an initial registration fee and a monthly tuition. The table shows the total cost of this training program for a certain number of months.**

Training Program

Number of Months, *m*	Total Cost (dollars), *t*
3	2,539
4	3,302
6	4,828
8	6,354
11	8,643

Which statement best represents the costs associated with this training program?

A) The monthly tuition is \$763 because $t = 250m + 763$.

B) The monthly tuition is \$250 because $t = 250m + 763$.

C) The initial registration fee is \$763 because $t = 763m + 250$.

D) The initial registration fee is \$250 because $t = 763m + 250$.

Item Information	
2012 WyCPS Domain:	Functions
2012 WyCPS Cluster:	Use functions to model relationships between quantities.
2012 WyCPS Standard:	8.F.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
Item Code:	VH145956

Admin:	Item Type:	Correct Answer:	Item Dok:	Total N-count:	Pvalue/Mean Score:
Spring 2015	MC	D	3	659	0.288

Score Analysis					
MC	A	B	C	D*	Omit
%Choosing	25.19	18.513	27.466	28.832	0