Entering Algebra Grade 8 Summer Math 2026

If you choose to complete this packet instead of Khan Get Ready for Algebra 1, please return your completed packet to your teacher in the Fall. Your goal is to complete **8 out of 11 assignments**.

Assignment: Adding and subtracting rational numbers (7.NS.A.1 set B)

1) What is the value of the expression below?

   -3 - (-6) + 9

2) The maximum temperature on the planet Mercury is 950°F. The minimum temperature is -346°F. What is the difference in temperatures?

3) Point A is located at -7 on a number line, and point B is located at 3 on the number line. Point C is the same distance away from point A as point B is from point A, but in the opposite direction. Which is the location of point C on the number line?
   a) -17
   b) -10
   c) -4
   d) -3

4) Which of the following is equivalent to 8 - 6?
   a) 8 + 6
   b) 6 - 8
   c) 8 + (-6)
   d) 8 - (-6)

5) Simplify the following:

   30 + (-30)

Assignment: Multiplying integers (7.NS.A.2c-1)

1) What is the product of a non-zero number *n* and it's reciprocal?

2) *Use the equation below to answer the following question:*

   -3xy = 45

   Which of the following statements is true?

   a) Only x is negative.
   b) Only y is negative.
   c) Both x and y are negative.
   d) Either x or y is negative.

3) If an odd number of negative numbers are multiplied together, which of the following is true about their product?
   a) it will be even
   b) it will be negative
   c) it depends on the numbers being multiplied
   d) it will be odd
   e) it will be positive

4) If an even number of negative numbers are multiplied together, which of the following is true about their product?
   a) It will be positive
   b) It will be odd
   c) It depends on the numbers being multiplied
   d) It will be negative
   e) It will be even

5) Simplify the expression below.

   (4)(-x)(-y)

Assignment: Adding, subtracting, factoring, and expanding linear expressions with rational coefficients (7.EE.A.1 set A)

1) Simplify the following:

   $(3x - 6) + (5x - 5)$

2) Simplify the following:

   $3x - 7 + 3x - 9$

3) Simplify the following:

   $4x - 8y + 7x - 5y - 4x + 5x$

4) Simplify the following:

   $(10x - 2y) - (2x - 7x)$

5) Use the distributive property to multiply the expression.

   $10(1m + 3)$

Assignment: Solving multi-step problems with rational numbers (7.EE.B.3-1 set A)

1) Natalie bought a book that was on sale for 25% off. The regular price of the book was $18. What was the sale price of the book?

2) The regular price of a CD player is $74. It is on sale for 20% off. Which of the following is closest to the sale price?
   a) $40
   b) $50
   c) $60
   d) $70

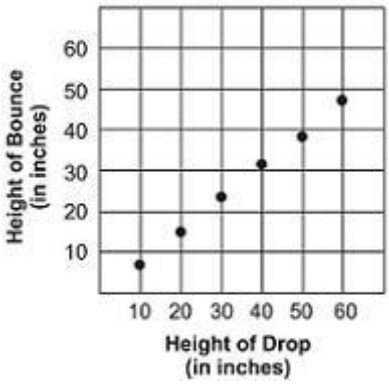
3) The camping equipment store is offering a 20% discount this weekend on each of the camping items listed in the chart.

Camping Equipment Prices

Item	Price
Tent	$250
Sleeping bag	$100
Boots	$55
Cooking kit	$35

After the 20% discount, and before tax is added, what is the price of the tent?

4) Linda and Kwame dropped a rubber ball from various heights and measured the height of the first bounce. They recorded their data in this graph. Which statement is true based on their data?



a) The ball bounces about 5 inches less than the height from which it was dropped.

b) The ball bounces about $1\frac{1}{3}$ times as high as the height from which it was dropped.

c) The ball bounces about $\frac{3}{4}$ as high as the height from which it was dropped.

d) The ball bounces about 5 inches higher than the height from which it was dropped.

5) Colin plans to order three types of skateboard parts. He plans to order a total of ten parts. He can order online (over the Internet) from Tony's Skateboard Shop. Colin's online order from Tony's Skateboard Shop is shown in the order form below. The subtotal amount is the total cost of all ten parts before any discount or tax. What is the *Subtotal* amount for the ten parts that Colin plans to order before the discount is applied?

Tony's Skateboard Shop Order Form			
Type of Part	**Price per Unit**	**Units Ordered**	**Cost**
Truck	$8.95	2	
Wheel	$6.95	4	
Package of Bearings	$2.45	4	
		Subtotal	
		Online Discount	–$2.00
		Subtotal After Discount	
		Sales Tax (5% of the Subtotal After Discount)	
		Total Payment Due	

6) Colin's subtotal for his skateboard parts is $55.50. By ordering online from Tony's Skateboard Shop, Colin is entitled to an Online Discount of $2.00 off the Subtotal amount. Sales Tax of 5% is added to the Subtotal After Discount. What is the Total Payment Due if Colin orders online from Tony's Skateboard Shop? Please round to the nearest penny.

Tony's Skateboard Shop Order Form			
Type of Part	**Price per Unit**	**Units Ordered**	**Cost**
Truck	$8.95	2	17.90
Wheel	$6.95	4	27.80
Package of Bearings	$2.45	4	9.80
		Subtotal	55.50
		Online Discount	–$2.00
		Subtotal After Discount	
		Sales Tax (5% of the Subtotal After Discount)	
		Total Payment Due	

7) A group of 36 people from the Nantucket Recreation Center plans to purchase tickets for a cruise to Bermuda. The standard fare for an individual ticket is shown below. The group is informed that, because of the size of the group, the standard fare will be reduced by 30%. With the discount of 30%, how many dollars does each member of the Nantucket Recreation Center have to pay for a cruise ticket?

Cruise Price

	Standard Fare
Individual Ticket Price	$1200

8) The regular price of a computer game is $49.95. Which of the following sale prices would result in the lowest price for the computer game?
   a) $8 less than the regular price
   b) 1/4 reduction on the regular price
   c) 85% of the regular price
   d) 20% discount on the regular price

Assignment: Solving equations in two steps or fewer (7.EE.B.4a set B)

1) What value of *a* makes the equation below true? **-12 + (-3a) = 0**
    a) -5
    b) 4
    c) -4
    d) 5

2) What does x equal in this equation? **x + 4 = 2**

3) What does x equal in this equation? **x + 5 = 1**

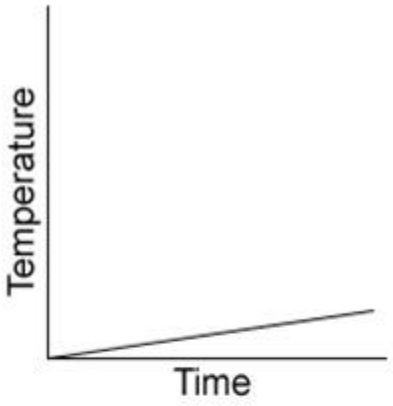
4) When 7 is subtracted from a number four times, the result is 3. What is the number?

5) Which of the following describes one way to solve this equation? **12 - 3*x* = 5**
    a) Add 3*x* to both sides, then divide both sides by 3.
    b) Subtract 3*x* from both sides, then multiply both sides by 3.
    c) Subtract 12 from both sides, then divide both sides by -3.
    d) Add 12 to both sides, then multiply both sides by -3.

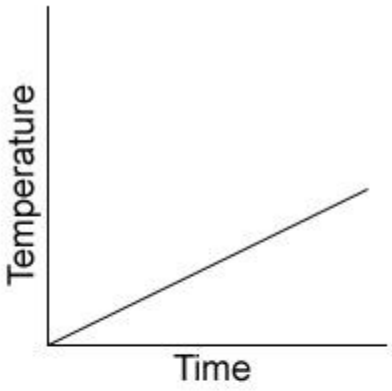
6) What does x equal in the equation below? **4x - 2 = 10**

Assignment: Comparing proportional relationships using graphs and equations (8.EE.B.5 set A)

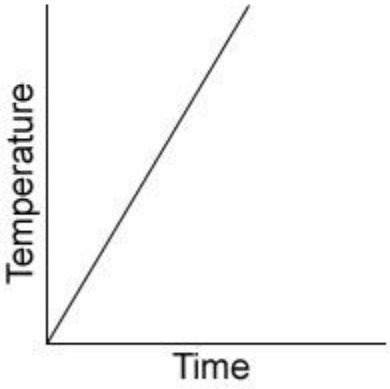
1) Stephanie graphs the rate of temperature increase over time for 4 closed systems. Which closed system has the fastest rate of change?



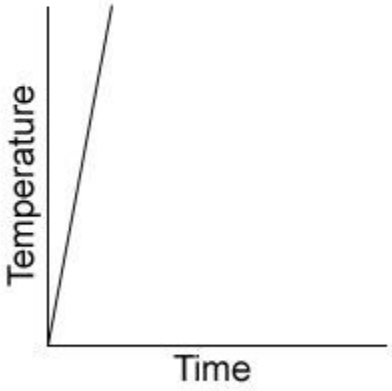
graph A



graph B

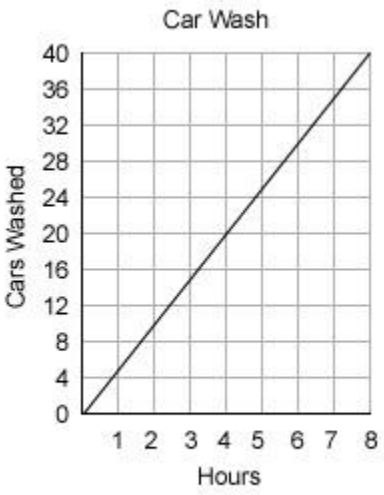


graph C



graph D

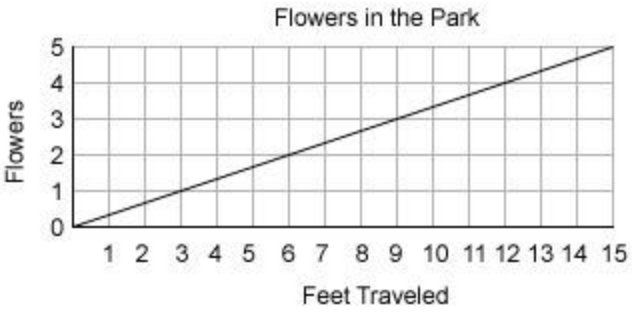
2) The graph below shows how many cars have been washed over an 8-hour day.



How many cars are washed per hour?

a) 1
b) 4
c) 5
d) 20

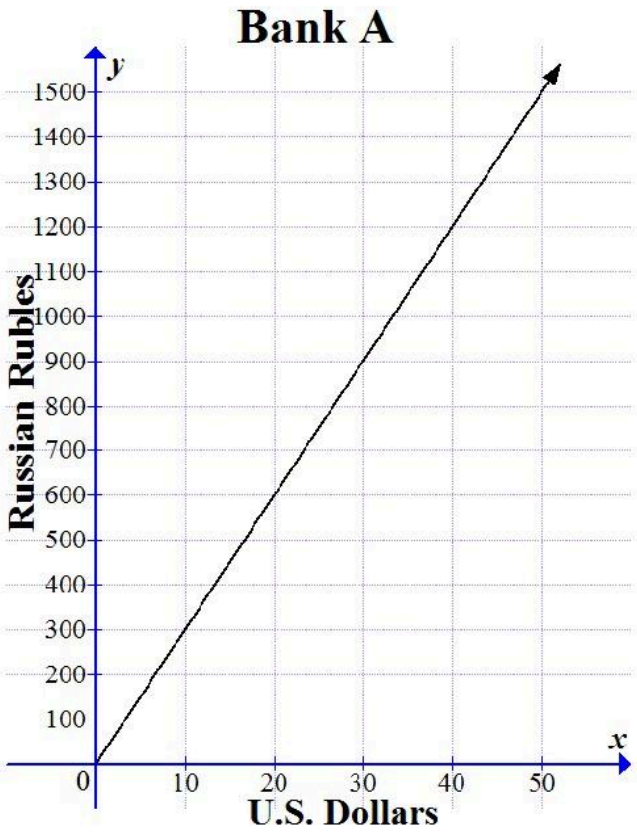
3) Rhonda plants flowers evenly along a path at a park. The graph below shows how many flowers you will have seen as you walk along the path.



At what rate, in flowers per feet, did Rhonda plant flowers?

a) 3/1 or 3:1
b) 1/3 or 1:3
c) 2/1 or 2:1
d) 1/2 or 1:2

4) Peter wants to compare exchange rates for converting U.S. dollars to Russian rubles. Bank A's exchanges follow the graph shown below.



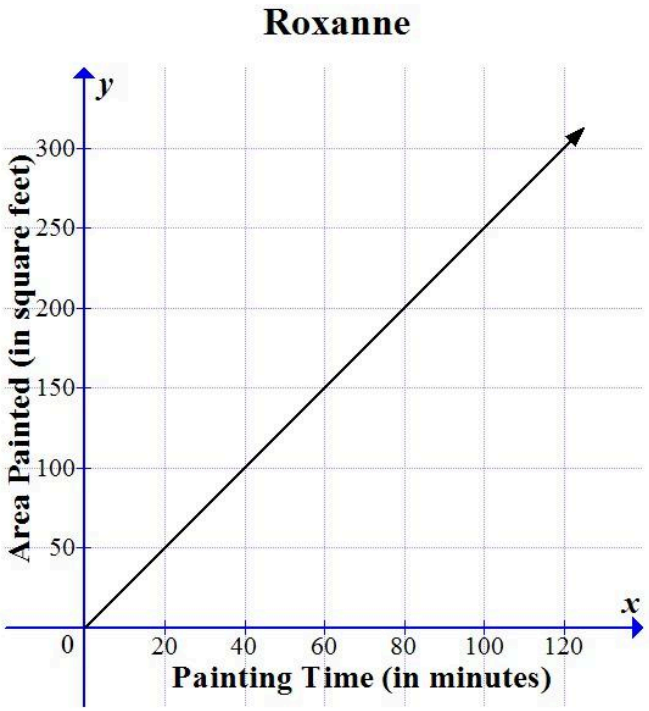
Bank B's exchanges match the data in the table shown below.

Bank B	
U.S. Dollars	Russian Rubles
15	525
20	700
28	980
40	1,400

Which bank offers a greater exchange rate, in rubles per dollar, and what is that rate?

a) Bank A, with an exchange rate of 30 rubles per dollar
b) Bank A, with an exchange rate of 50 rubles per dollar
c) Bank B, with an exchange rate of 35 rubles per dollar
d) Bank B, with an exchange rate of 40 rubles per dollar

5) Georgia, Francisco, Bill, and Roxanne are hired to repaint the school. Georgia can paint 180 square feet in 2 hours. If x represents painting time, in minutes, and y represents area painted, in square feet, then Francisco paints according to the equation $y = 3.2x$, Bill paints according to the table shown below, and Roxanne paints according to the graph shown below.

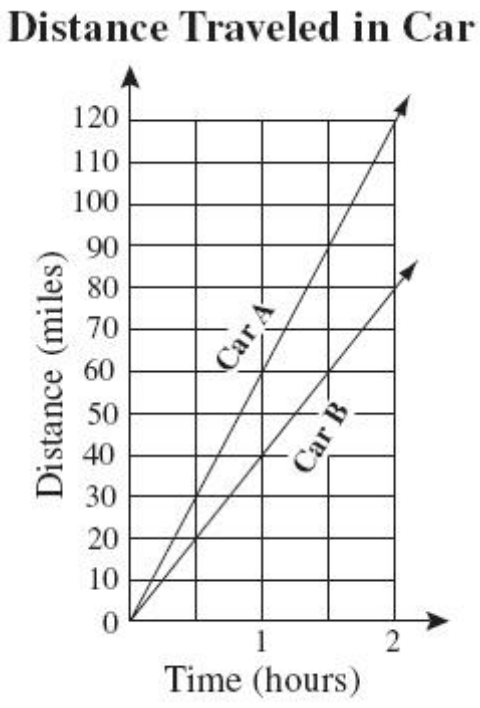


Bill	
x	*y*
15	45
20	60
50	150
80	240

Which person has the fastest painting rate, in square feet per minute?

a) Georgia
b) Francisco
c) Bill
d) Roxanne

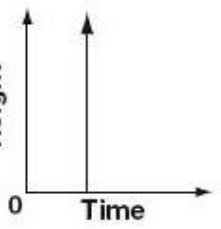
6) The graph below shows the distance Car A and Car B traveled in two hours on the same road in the same direction.

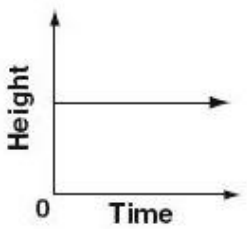


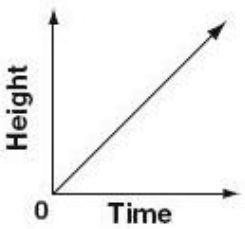
Which of the following statements is true about the difference between the distance traveled by Car A and the distance traveled by Car B as time progresses?

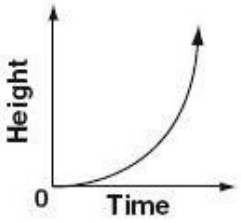
a) The difference in the distance between Car A and Car B decreases.
b) The difference in the distance between Car A and Car B increases.
c) The difference in the distance between Car A and Car B stays the same.
d) The difference in the distance between Car A and Car B is zero.

7) A hot-air balloon rises at a constant rate. Which graph could show the relationship between the balloon's height above the ground and the amount of time that has passed since it left the ground?

A. 

B. 

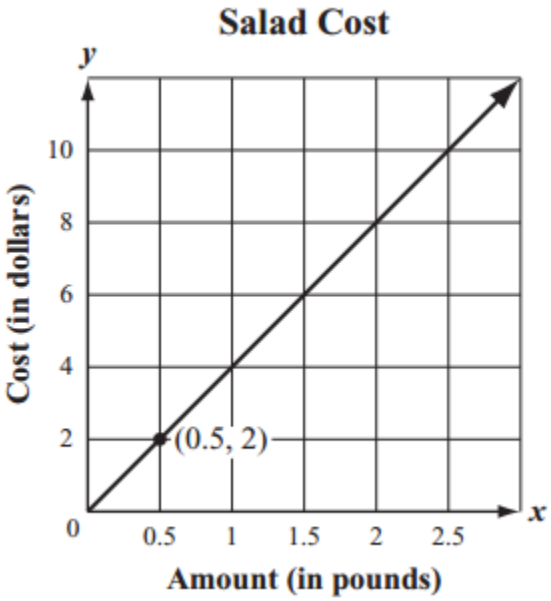
C. 

D. 

8) In an experiment, the temperature of a room was lowered 6 degrees every hour. The original temperature of the room was 72 degrees. Which of the following equations correctly expresses T, the temperature, in degrees, of the room, as a function of h, the number of hours that have passed?

a) T = -6h - 72
b) T= -12h - 72
c) T = - 6h + 72
d) T = -12h + 72

9) The graph below represents *y*, the cost in dollars of *x* pounds of salad at a salad bar.



What is the unit rate for the cost of a salad at the salad bar?

a) $0.50 per pound
b) $1.00 per pound
c) $2.00 per pound
d) $4.00 per pound

Assignment: Deriving a linear equation from a point and slope (8.EE.B.6 set A)

1) Write an equation of a line using the following information:

   Slope of the equation: 3/4

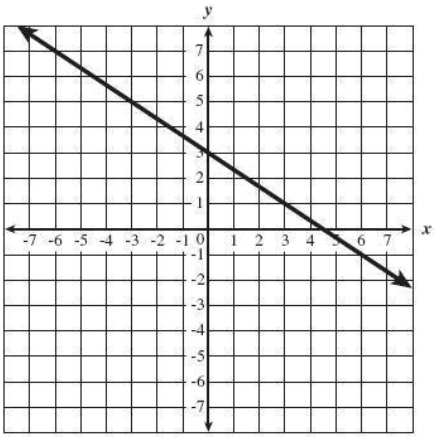
   Y-intercept of the equation: 5

   a) y = 5x + ¾
   b) y = 5x - ¾
   c) y = (3/4)x + 5
   d) y = (3/4)x - 5

2) Write a linear equation for the line with slope = -6/3 going through the point: (0, 0)
   a) y = (6/3)x
   b) y = (-6/3)x
   c) y = x + 6/3
   d) y = x - 6/3

3) Write a linear equation for the line with slope = -1/4 going through the point: (0, 0)
   a) y = (-1/4)x
   b) y = (1/4)x
   c) y = x - ¼
   d) y = x + 1/4

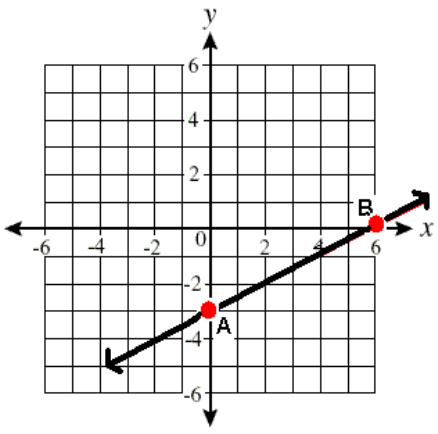
4) What is the equation of the line graphed below?



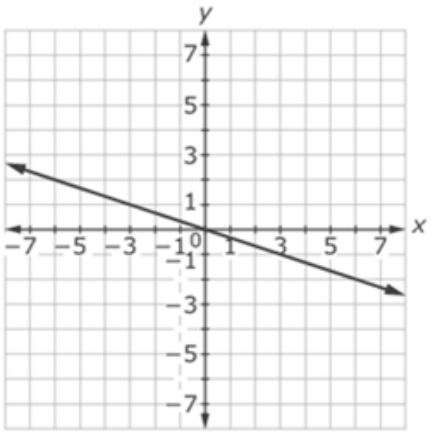
   a) y = -(2/3) x + 3
   b) y = -(2/3) x + 4.5
   c) y = 3x - (2/3)
   d) y = 3x + 4.5

5) What is the equation of the line graphed below?

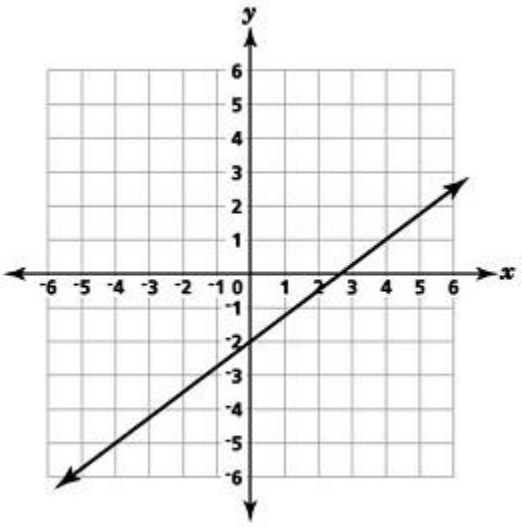
   a) y = (-1/2)x - 3
   b) y = -3x + 6
   c) y = (1/2)x - 3
   d) y = 6x - 3

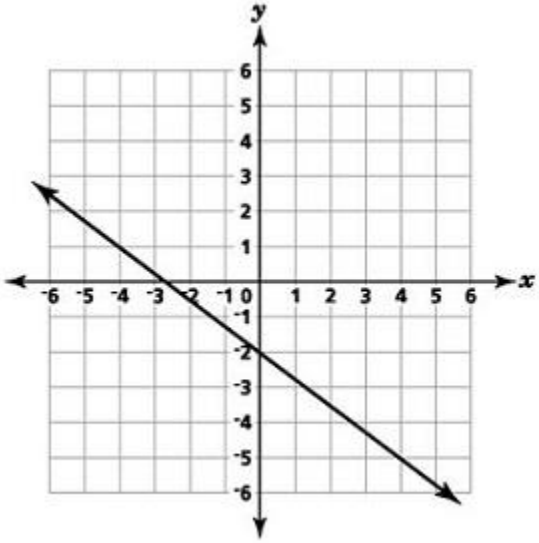


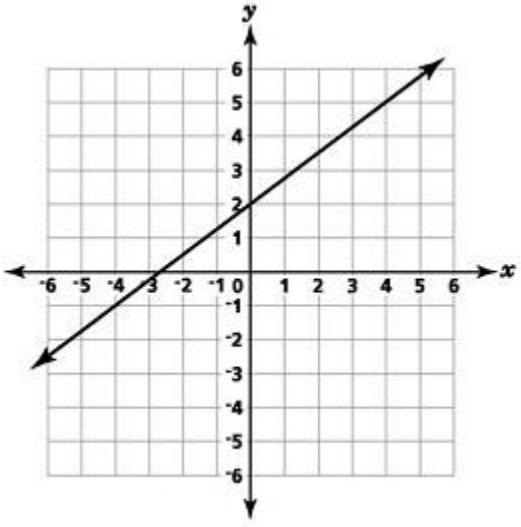
6) Look at the graph of the linear function. Write an equation for the line in slope-intercept form.

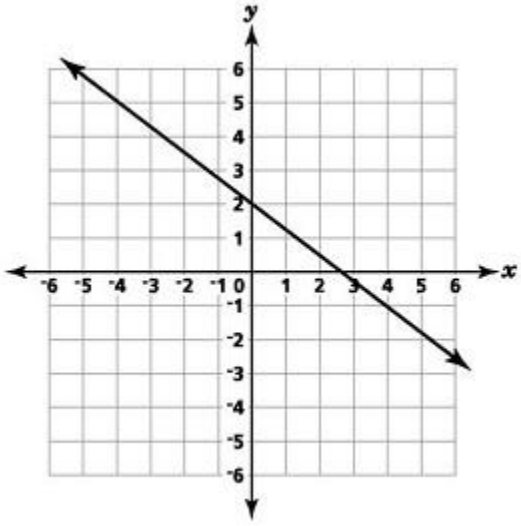


7) Which graph represents the equation $y = \frac{3}{4}x + 2$?

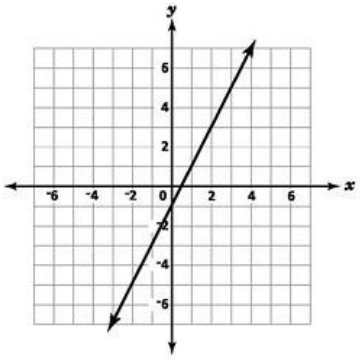
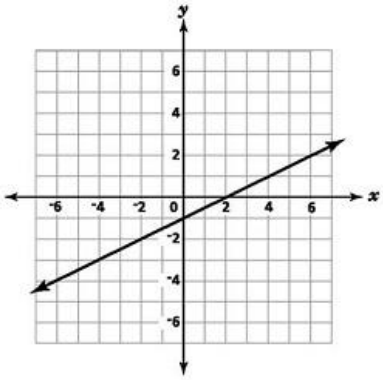
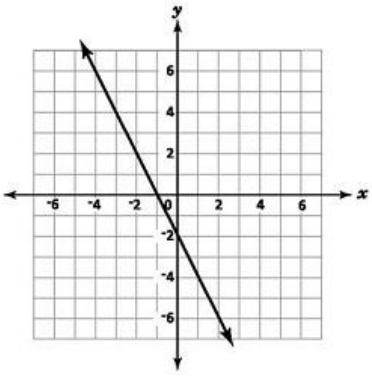
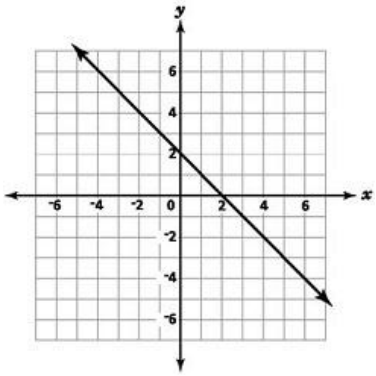




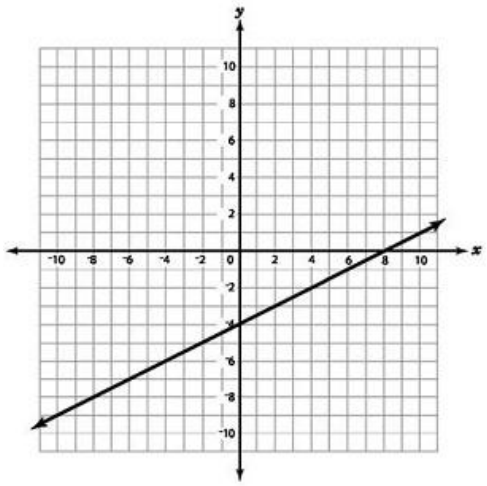
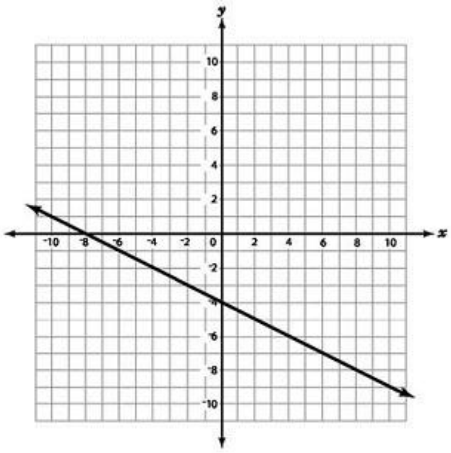
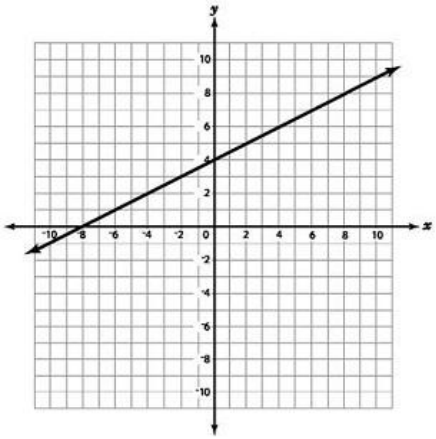
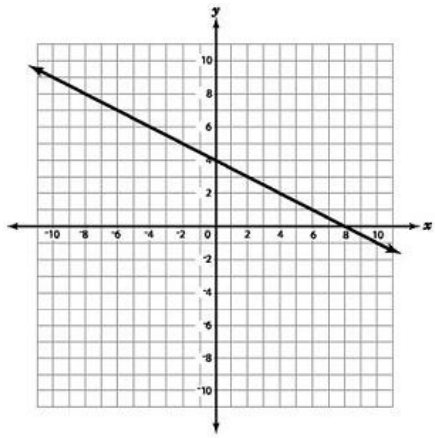




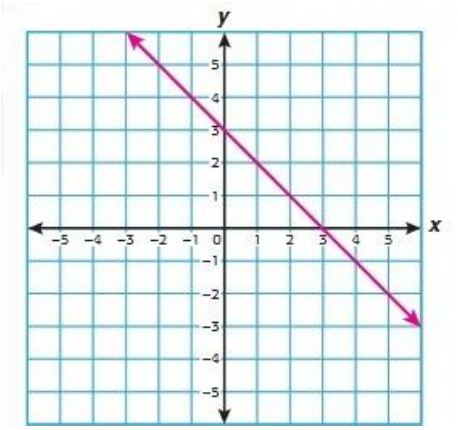
8) Which shows the graph of $y = 2x - 1$?

9) What is the graph of the equation y = ½x - 4?

10) Which equation best represents the line shows on this graph?



a) $y = x + 3$
b) $y = -x + 3$
c) $y = 3x$
d) $y = -3x$

Assignment: Solving multi-step linear equations (8.EE.C.7 set A)

1) Solve for x.

   $3(7x - 5) + 5 = 10x - 5$

2) A family of five people has $200 to spend on fishing rods and fishing licenses. They spend a total of $20 on licenses. Assuming they buy 5 identical rods, what is the maximum amount they can spend on each rod?

3) Determine the number of solutions for the equation:

   $7.48 + x = 2.44 + x$

   a) 0 solutions
   b) 1 solution
   c) infinite number of solutions

4) Solve for x.

   $8x - 5x = 3$

   a) 1
   b) 0
   c) $8x = 3 + 5x$

5) Without solving them, say whether each of these equations has a positive solution, a negative solution, a zero solution, or no solution. Explain your answers.
   a) $3x = 5$
   b) $5z + 7 = 3$
   c) $7 - 5w = 3$
   d) $4a = 9a$
   e) $y = y + 1$

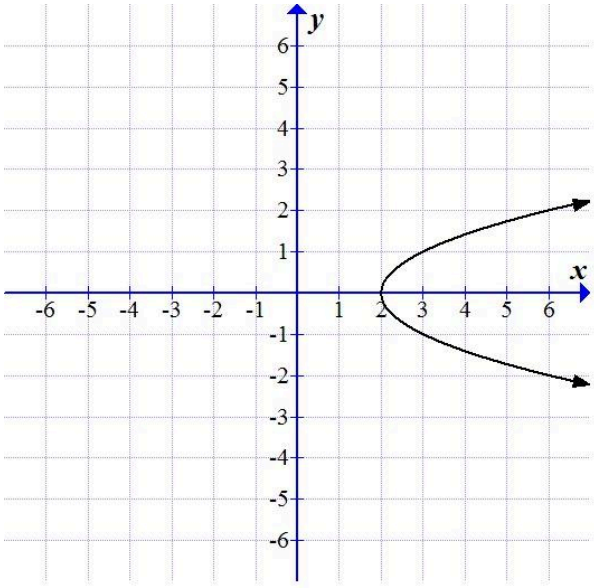
Assignment: Understanding functions (8.F.A.1 set B)

1) What function was used to create the input/output table shown below?

x	*y*
3	1
−1	−7
0	−8
−3	1
2	−4

a) $y = x - 2$
b) $y = 2x - 5$
c) $y = -3x + 10$
d) $y = x^2 - 8$

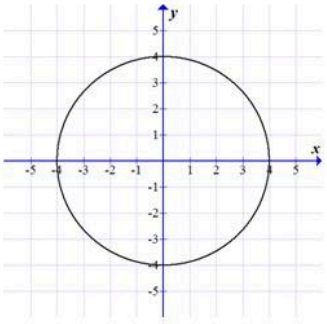
2) The graph of the equation $x - y^2 = 2$ is shown below. Which of the following best explains why this is or is not a function?



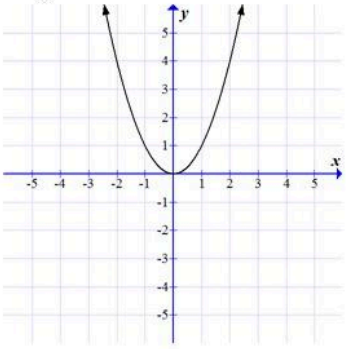
a) It is a function, because it is continuous.
b) It is a function, because for each x-value, there is exactly one y-value.
c) It is not a function, because it is not a straight line.
d) It is not a function, because for some x-values, there is more than one y-value.

3) Which of the following graphs does not represent a function?

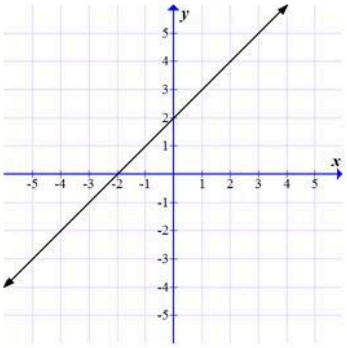
Graph A



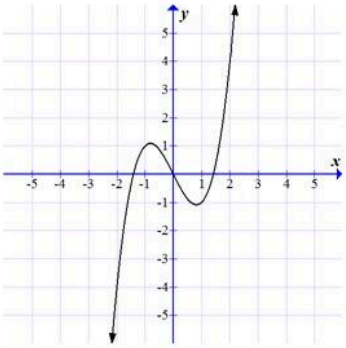
Graph C



Graph B



Graph D



4) Which of the following tables represents a function?

Table A

x	y
−1/3	0
1/3	2
1	4
1 2/3	2

Table B

x	y
5	1/2
1/2	3
1 1/2	8
5	1/4

Table C

x	y
1.5	−0.3
−1.5	0.3
−10	2
−10	−2

Table D

x	y
4.6	0.3
0	−1.5
1.9	0.2
0	0.8

5) Which of the following tables does not represent a function?

Table A

x	y
−3	2
0	5
3	8

Table B

x	y
2	−7
4	−2
6	3

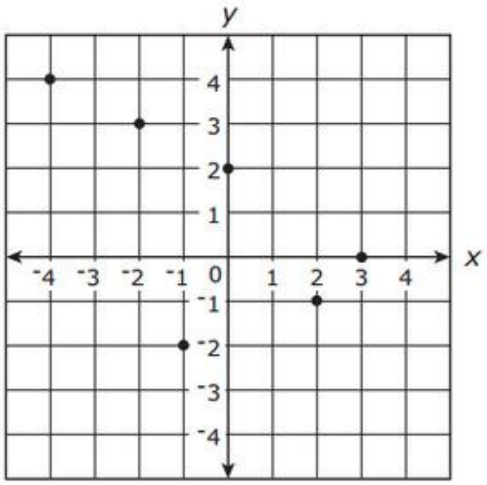
Table C

x	y
2	−8
0	0
2	8

Table D

x	y
5	1
−9	3
6	0

6) The graph represents *y* as a function of *x*.



Which of the following points could be placed on the graph to allow the graph to continue to be considered a function?

a) (0, 1)
b) (2, 2)
c) (3, 4)
d) (4, 2)

7) Which is based on the following rule? First, square the input number. Then subtract the input number from its square.

A.

Input (x)	1	2	5
Output (y)	1	4	20

B.

Input (x)	1	2	5
Output (y)	0	4	25

C.

Input (x)	1	2	5
Output (y)	1	2	25

D.

Input (x)	1	2	5
Output (y)	0	2	20

8) Which of the following tables does not represent a function?

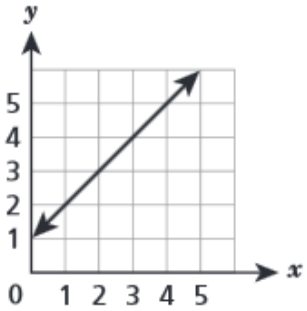
x	y
–3	5
–2	5
–1	5
0	5

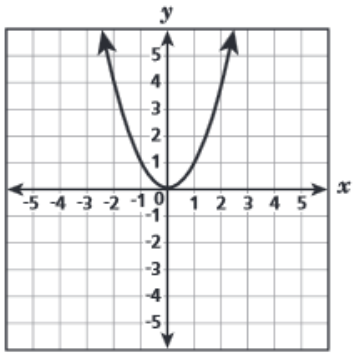
x	y
–1	–1
0	0
1	1
2	2

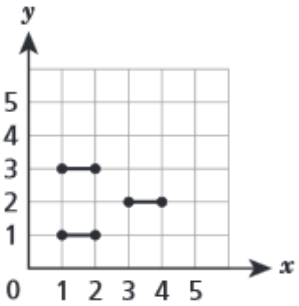
x	y
3	0
4	1
5	2
5	3

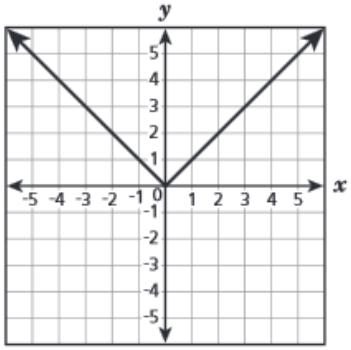
x	y
2	8
4	6
6	4
8	2

9) Which graph below does not represent a function of x?



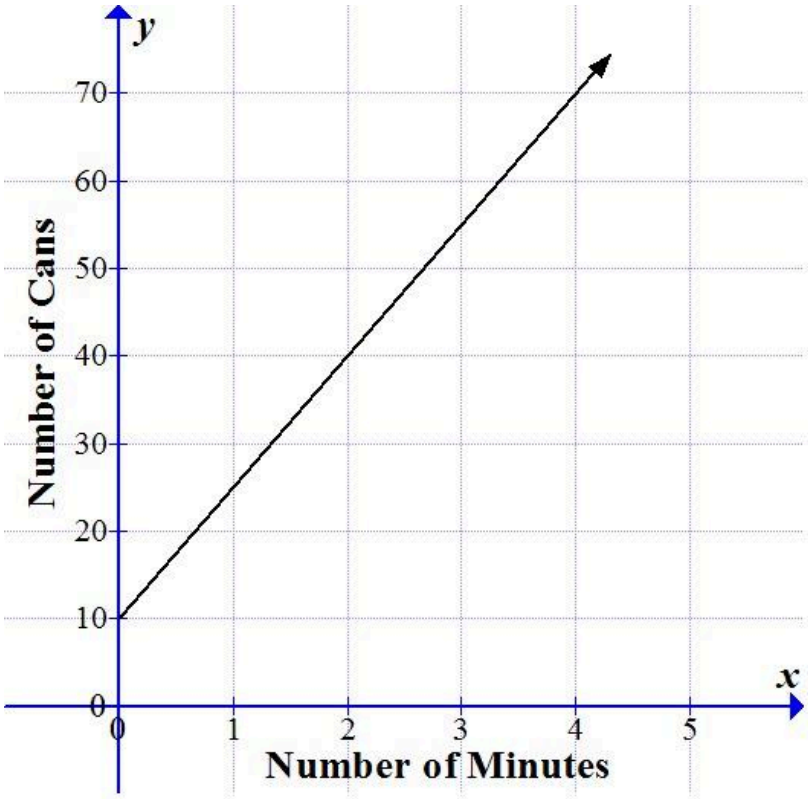






Assignment: Comparing properties of two functions each represented in a different way (8.F.A.2 set A)

1) Both the cans of soup and the bags of rice on a shelf in a grocery store were restocked at constant rates. The number, *y*, of cans of soup on the shelf after *x* minutes is shown in the graph below.



The number, *y*, of bags of rice on the shelf after *x* minutes is given by the function $y = 12x + 20$. Which item was restocked at a faster rate, and what is that rate?

a) cans of soup, with a rate of 10 cans per minute
b) cans of soup, with a rate of 15 cans per minute
c) bags of rice, with a rate of 12 bags per minute
d) bags of rice, with a rate of 20 bags per minute

2) Pedro is comparing the costs of visiting two different amusement parks, each of which charges a basic admission fee to the park in addition to a cost per ride. At Amusement Park A, the total cost, *c*, in dollars, for going on *r* rides, including the basic admission fee to the park, is given by the equation $c = 30 + 1.25r$. The table below gives the total cost, *c*, in dollars, for going on *r* rides, including the basic admission fee, at Amusement Park B.

Park B

r	*c*
0	20.00
1	23.75
2	27.50
3	31.25

For which amusement park cost function is the rate of change, in dollars per ride, greater, and by how much?

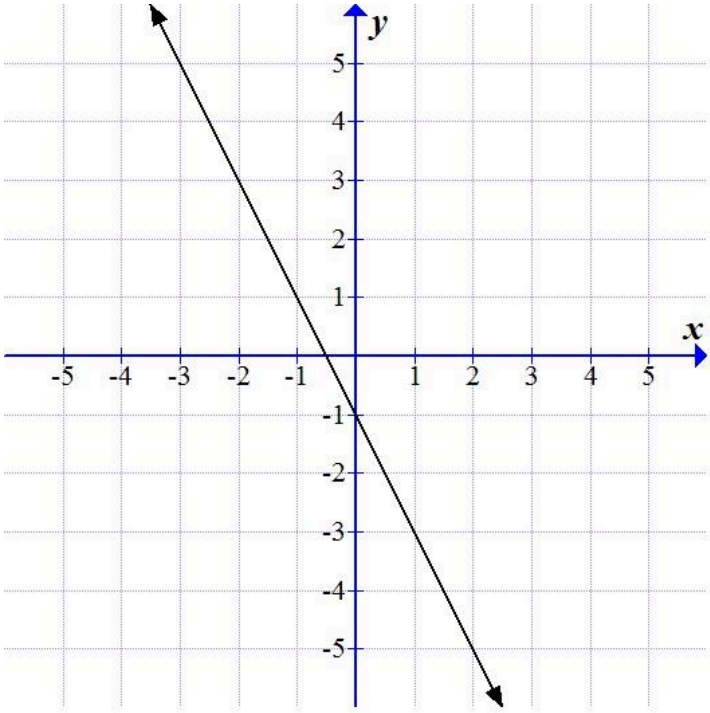
Amusement Park A has a greater cost per ride, by $2.50.

Amusement Park A has a greater cost per ride, by $10.00.

Amusement Park B has a greater cost per ride, by $1.25.

Amusement Park B has a greater cost per ride, by $2.50.

3) Carly drew the linear function shown below.



Which of the following represents a linear function with a steeper negative slope than Carly's function?

Function A:

x	y
−1	8
0	5
1	2
2	−1

Function B:

x	y
−4	9
−2	6
4	−3
6	−6

Function C:

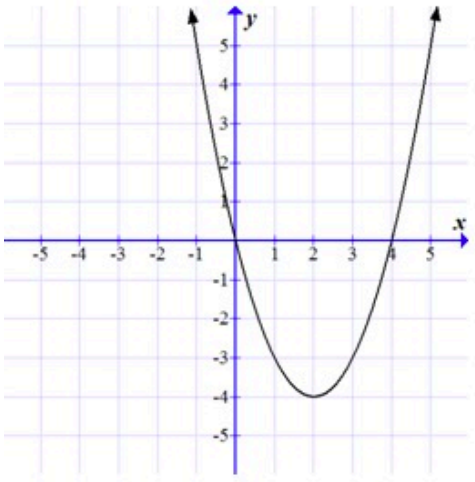
$y = 4x - 3$

Function D:

$y = -x - 5$

4) Which of the following functions has the greatest *y*-intercept?

Function A:



Function B:

x	y
−2	4
0	3
4	1
6	0

Function C:

the function relating y, the number of bracelets in Gina's collection, to x, the number of months since she began adding 2 bracelets per month to her initial collection of 4 bracelets

Function D:

$y = 2.5x + 5$

5) Use the two functions below to answer the question.

Function A

$y = \frac{1}{4}x - \frac{2}{3}$

Function B

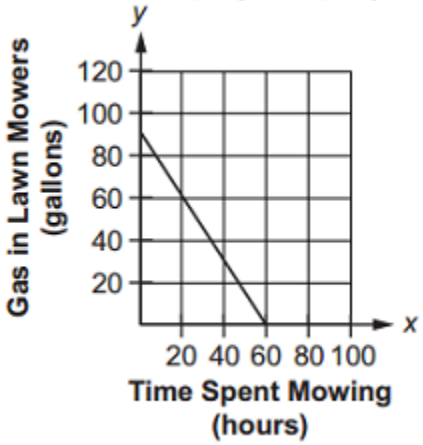
x	y
2	−8
4	−9
6	−10
8	−11

Which statement about the slopes of the functions is true?

a) The slopes of both functions are negative.
b) The slopes of both functions are positive.
c) The slope of function A is negative and the slope of function B is positive.
d) The slope of function A is positive and the slope of function B is negative.

6) The graph and table below show information about two landscaping companies.

Landscaping Company A



Landscaping Company B

Time Spent Mowing (hours)	Gas in Lawn Mowers (gallons)
0	110
24	80
48	50
72	20
88	0

Which statement about the two landscaping companies is true?

a) Landscaping company A mows for 20 more hours than landscaping company B.
b) Landscaping company B mows for 20 more hours than landscaping company A.
c) Landscaping company A uses 0.25 of a gallon more gasoline per hour than landscaping company B.
d) Landscaping company B uses 0.25 of a gallon more gasoline per hour than landscaping company A.

Assignment: Constructing a function to model a linear relationship between two quantities (8.F.B.4 set B)

1) Find the slope of the line that passes through the following points. Write "undefined" if there is no slope.

   (-2, -16); (0, 2)

2) Fill in the blank below to complete the linear equation for the line going through the points (0, 41) and (5, -9):

   y = _____

3) Fill in the blank below to complete the linear equation for the line going through the points (-9, 1) and (-1, 9)

   y = _____

4) Juan had a checking account with a balance of x dollars. After he withdrew y dollars, he had a balance of $100. Which of the following shows the correct relationship between x, y, and $100?
   a) $x - y = \$100$
   b) $\$100 < x - y$
   c) $x + y = \$100$
   d) $x - y > \$100$

5) You have $100 to spend on a barbecue where you want to serve chicken and steak. Chicken costs $1.29 per pound and steak costs $3.49 per pound.
   a) Write a function that relates the amounts of chicken and steak you can buy.

   b) Graph the function you wrote in part (a). What is the meaning of each intercept in this context? What is the meaning of the slope?

   c) Use your graph, the information in part (b), and any other information from the equation and graph, to discuss what your options are for the amounts of chicken and steak you can buy for the barbecue.