PDF

MATH-A

2013-2014 Algebra 1 Student Growth Assessment 2

[Exam ID:0NCXGL

Exam not valid for Paper Pencil Test Sessions

1 **The formula, $C = 4M + 5$, calculates the cost of a cab ride where C is the total cost of the cab ride and M is the number of miles the cab travels. Carol needs to get to the library downtown and only has a certain amount of money to spend on the cab ride. Which equation correctly solves for the amount of miles Carol could ride in a cab with a given amount of money?**

A $M = 4C - 5$

B $M = 4(C - 5)$

C $M = \frac{C - 5}{4}$

D $M = \frac{C + 5}{4}$

2 **Pam shows her work when solving an equation.**

Step 1	$2w + 3(4 + w) = 27$
Step 2	$2w + 3(4) + 3(w) = 27$
Step 3	$2w + 12 + 3w = 27$
Step 4	$2w + 3w + 12 = 27$
Step 5	$5w + 12 = 27$
Step 6	$5w + 12 - 12 = 27 - 12$
Step 7	$5w = 15$
Step 8	$\left(\frac{1}{5}\right)5w = \left(\frac{1}{5}\right)15$
Step 9	$1w = 3$
Step 10	$w = 3$

Between which two steps did Pam use the commutative property of addition to justify her work?

A 1 and 2

B 3 and 4

C 5 and 6

D 6 and 7

3 **Which of the following is the solution set to the equation $12a^2 + 5a - 3 = 0$?**

A $\left\{\frac{1}{4}, -\frac{2}{3}\right\}$

B $\left\{\frac{1}{2}, \frac{1}{3}\right\}$

C $\left\{-\frac{3}{4}, \frac{1}{3}\right\}$

D $\left\{-\frac{3}{4}, -\frac{1}{3}\right\}$

4 Directions: Type your answer in the box.

Solve for x:

$$\frac{1}{2}(14x - 6) = \frac{3}{4}(8x + 12)$$

$$x =$$

5 **Which ordered pair represents the solution to the system of equations?**

$$\begin{cases} 10r - 4s = -10 \\ 5r + 3s = -25 \end{cases}$$

A $(5,15)$

B $(3,10)$

C $\left(2, -\frac{15}{5}\right)$

D $\left(-\frac{13}{5}, -4\right)$

6 **Glen and Sarah sold T-shirts and sweatshirts at a local shop. Glen sold three T-shirts and seven sweatshirts for a total amount of $240.50. Sarah sold six T-shirts and five sweatshirts for a total amount of $220.00. Based on this information, what is the cost of a T-shirt and sweatshirt?**

A T-shirt for $9.00 and sweatshirt for $30.50

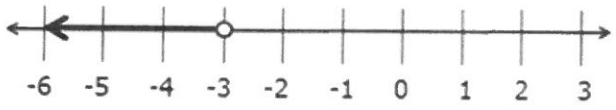
B T-shirt for $11.67 and sweatshirt for $30.00

C T-shirt for $12.50 and sweatshirt for $29.00

D T-shirt for $23.70 and sweatshirt for $24.20

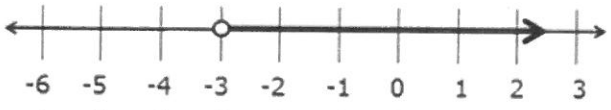
7 **Which graph represents the solution to the inequality $13 - 10x \leq 2x + 49$?**

A



B

C



D

8 **Which inequality does NOT require the multiplication property of inequality to justify any of the steps when solving?**

A $\frac{1}{4}x + 2 > 14$

B $\frac{1}{5} \cdot x + 1 \geq 8$

C $\frac{1}{2}x + 3 < 7$

D $\frac{1}{3} \cdot 3x \leq 4$

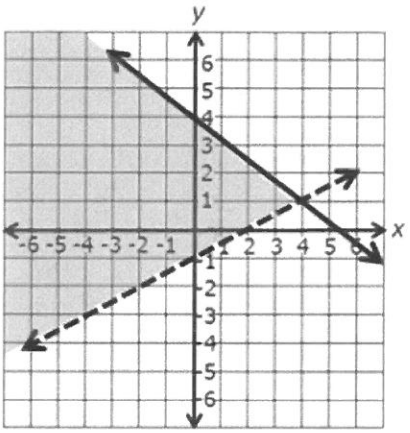
9 **Paul needs to have his car fixed and consults two mechanics. In addition to an hourly rate, both mechanics charge a service fee to work on a car. The rates and fees of the two mechanics are shown in the table.**

	Service Rate	Hourly Rate
Mechanic A	$50.00	$12.00
Mechanic B	$40.00	$15.00

To the nearest minute, at what amount of time does Mechanic A become less expensive than Mechanic B?

A 3 hour and 20 minutes or more
B 3 hour and 21 minutes or more
C 3 hour and 33 minutes or more
D 3 hour and 34 minutes or more

10 **Which system of inequalities is represented by the graph?**



A $\begin{cases} 3x - 4y < 16 \\ 4x - 8y \geq 8 \end{cases}$

B $\begin{cases} 3x + 4y \leq 16 \\ 4x - 8y \leq 8 \end{cases}$

C $\begin{cases} 3x - 4y \leq 16 \\ 4x - 8y < 8 \end{cases}$

D $\begin{cases} 3x + 4y \leq 16 \\ 4x - 8y < 8 \end{cases}$

11 **Which equation represents a line with a slope of $-\frac{5}{4}$?**

A $5x + 4y = 7$
B $5x - 4y = 7$
C $4x + 5y = 7$
D $4x - 5y = 7$

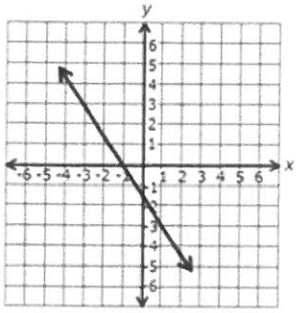
12 Directions: Type your answer in the box. Use "/" for the fraction bar.

What is the slope of the line that passes through (2, -3) and (9, -7) ? Fractions must be in simplest form.

13

Which graph represents a line with a slope of $-\frac{3}{2}$?

A



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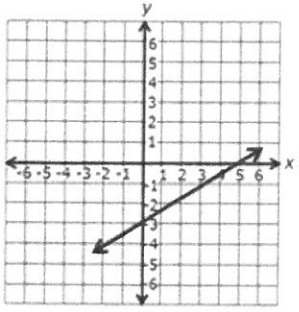
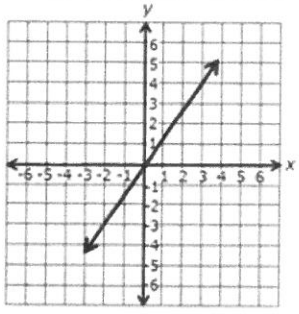
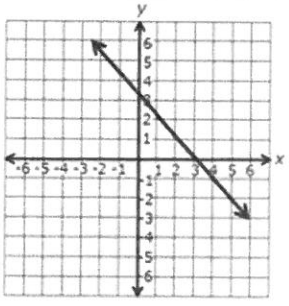


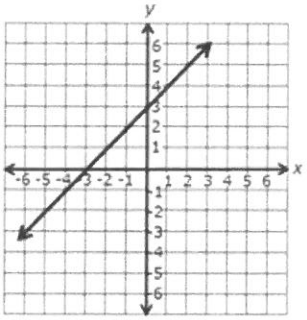
C



D

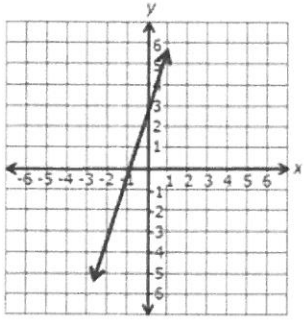


14 **The equation $y = x + 3$ is shown on the graph below.**

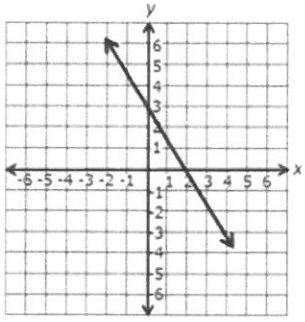


Which is most likely the graph of $y = 2x + 3$?

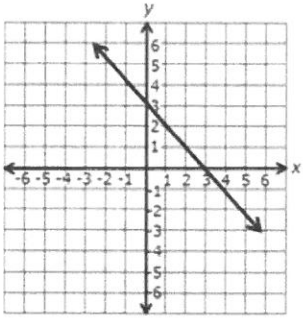
A



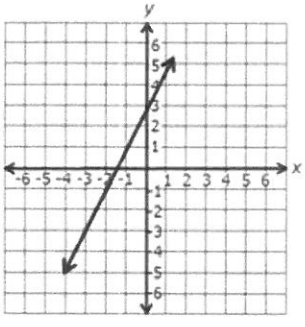
B



C

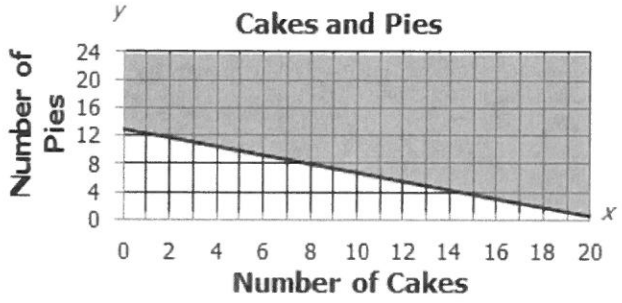


D

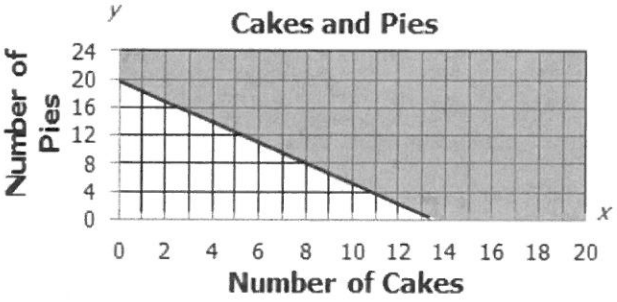


15 **Joseph wants to buy cakes and pies from a local bake sale. The cakes cost $12.75 and the pies cost $8.50. He would like to spend no more than $170.00. Which graph best represents this situation?**

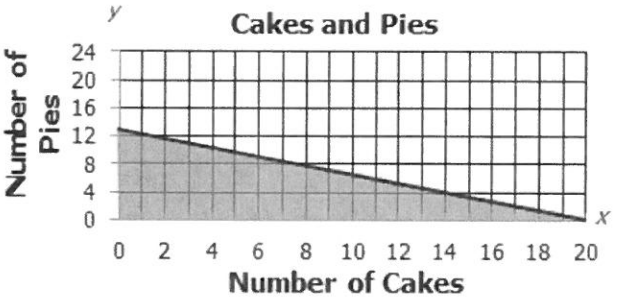
A



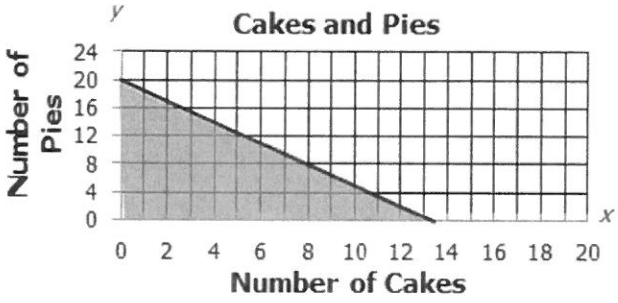
B



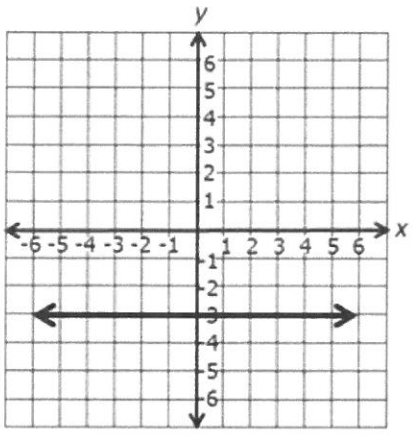
C



D



16 **Which equation best describes the line graphed on the coordinate plane?**



A $y = -3$
B $y = -3x$
C $x = -3$
D $y = x - 3$

17 **Which is an equation for the line that contains (–2, 5) and has a slope of –7 ?**

A $7x + y = 33$
B $y = -7x + 9$
C $7x + y = -9$
D $y = -7x - 33$

18 **Peggy plotted and drew a straight line through the points below on a coordinate plane.**

{(–8, 9), (8, –1), (16, –6), (24, –11)}

What is the equation of the line she drew?

A $y = \frac{5}{8}x - 6$

B $y = \frac{8}{5}x - \frac{69}{5}$

C $y = -\frac{8}{5}x + \frac{59}{5}$

D $y = -\frac{5}{8}x + 4$

19 **Mrs. Smith's class of x students are going on a treasure hunt and need to be separated into 4 groups. Which expression could be used to determine the total number of students in each group?**

A $\frac{x}{4}$

B $4 + x$

C $4x$

D $\frac{4}{x}$

20 **Which statement could be represented by the expression $3m^2 - 7$?**

A Three squared times a num er less seven

B The square of three times a num er decreased y seven

C Three times the square of a num er less than seven

D Seven less than three times the square of a num er

21 Directions: Type your answer in the box.

What is the value of $| x^2 \div z - y | + z$ when $x = 6$, $y = 14$, and $z = 3$?

22 **What is the value of the expression $c^2(8 - b + a^3) + 7 \bullet a$ when $a = 2$, $b = 4$, and $c = 3$?**

A 102

B 122

C 166

D 230

23 **Which is equivalent to $\frac{a^2c(18ab^4c^2)}{24a^5b^2c^7}$?**

A $\frac{3a^3c^5}{4b^2}$

B $\frac{3b^2}{4a^2c^4}$

C $\frac{3b^2}{4a^3c^5}$

D $\frac{3a^2c^4}{4b^2}$

24 **Which of the following is equivalent to $\frac{6g^7 + 42g^6}{6g^2}$ when $g \neq 0$?**

A $8g^9$
B $g^5 + 7g^4$
C $8g^{11}$
D $g^5 + 42g^6$

25 **Which expression is equivalent to $\frac{3d^2 - 11d - 4}{d - 4}$?**

A $3d + 1$
B $d - 11$
C $3d - 11$
D $d + 11$

26 Directions: Click on a box to choose each factor you want to select. You must select all correct factors.

Identify each factor of $12a^2 - 5ab - 3b^2$.

$4a + 3b$	$3a + b$	$a - b$	$4a - 3b$
$3a$	b	$3a - b$	$a + 3b$

27 **Which of the following is a prime polynomial?**

A $18ab + 12c$
B $27a^2b + 7c$
C $6bc^2 - 3ac$
D $9bc - 7b^2$

28 **In simplest radical form, $\sqrt{448}$ is equal to —**

A 112
B $32\sqrt{7}$
C $7\sqrt{8}$
D $8\sqrt{7}$

29 **What is $\sqrt[3]{960}$ expressed in simplest radical form?**

A $4\sqrt[3]{15}$

B $8\sqrt[3]{5}$

C $3\sqrt[3]{320}$

D $15\sqrt[3]{4}$

30 $$\sqrt{117a^7b^6c^3}$$

In simplest radical form, the expression shown is equal to —

A $58a^6b^6c^2\sqrt{ac}$

B $4b^3\sqrt{117a^7b^3}$

C $3a^3b^3c\sqrt{13ac}$

D $9a^3b^3c\sqrt{13ac}$

31 Directions: Click on a box to choose each answer you want to select. You must select all correct answers.

The following set of ordered pairs is a function.

{(1, 4), (3, 12), (–3, –12), (–7, 4)}

Identify each ordered pair that can be added to the set and the set still remain a function.

(–7, –3)	(–3, 4)	(–1, 4)
(12, –7)	(1, 12)	(4, 12)

32 **A function *f* is described.**

- **$f(x) = (x + 1)^2 - 7$**
- **The domain of *f* is all real numbers.**

The range of *f* is all real numbers greater than or equal to —

A 7

B –1

C –6

D –7

33 **Which function has an x-intercept of 10 ?**

A $f(x) = (x + 5)^2 - 10$
B $f(x) = (x - 10)(x + 10) + 3x$
C $f(x) = x^2 + 7x - 30$
D $f(x) = x(x - 17) + 70$

34 Directions: Type your answer in the box.

What is $g(-3)$ for $g(x) = (x + 7)^2 + 2$?

35 **A function contains the following ordered pairs.**

{(0, -8), (1, -6), (3, -2), (4, 0), (5, 2)}

Which rule represents the same function?

A Four less than a num er x squared is y
B Eight less than two times a num er x is y
C Eight less two times a num er x is y
D Four less a num er x squared is y

36 **Look at the different situations in the table.**

Situation 1	The perimeter of a shape decreases as the size of the shape decreases
Situation 2	The more luggage you have to carry the longer it takes to travel to your departure gate
Situation 3	The amount of money you owe on a gift decreases as the number of people helping to pay for the gift increases
Situation 4	The diameter of a balloon increases as the amount of air put into the balloon increases

Which situation describes a inverse variation?

A Situation 1
B Situation 2
C Situation 3
D Situation 4

37 **Joan and Fran went to the market to buy vegetables. Joan bought 4 heads of lettuce for $10 and Fran bought 10 heads of lettuce for $25. If *n* represents the number of heads of lettuce and *p* represents the final price for the amount of lettuce purchased, which statement is true about this relationship?**

A The price for a certain amount of lettuce varies inversely with the num er of heads of lettuce ecause $\$2.50n = p$.

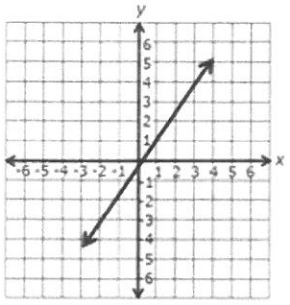
B The price for a certain amount of lettuce varies directly with the num er of heads of lettuce ecause $\$2.50n = p$.

C The price for a certain amount of lettuce varies inversely with the num er of heads of lettuce ecause $\$2.50p = n$.

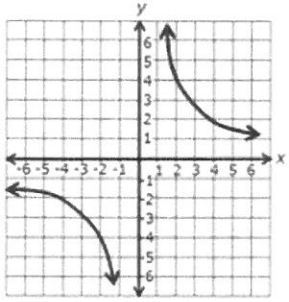
D The price for a certain amount of lettuce varies directly with the num er of heads of lettuce ecause $\$2.50p = n$.

38 **Which of the following graphs shows an inverse variation?**

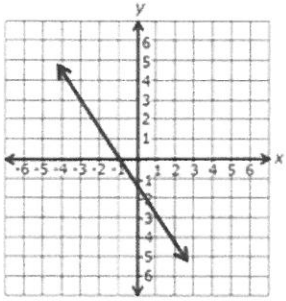
A



B



C



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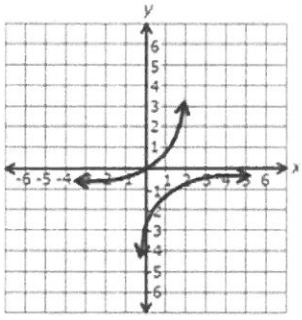


39 **A group of volunteers is helping to create a community garden. The project should take 200 hours of work. If *v* represents the number of volunteers and each volunteer works only eight hours, which equation could be used to determine how many volunteers are needed to finish the project?**

A $8 = \frac{200}{v}$

B $v = 200 \cdot 8$

C $200 = \frac{8}{v}$

D $8 = 200 \cdot v$

40 **Which of the following tables indicates that x and y vary directly?**

A

x	y
6	3
2	1
8	4
4	2

B

x	y
1	16
4	4
8	2
2	8

C

x	y
5	2
2	5
10	1
1	16

D

x	y
4	2
2	4
8	1
1	8

41 **The United States Department of Agriculture recorded how much an average family spends on a child per year and the data is shown in the table.**

Family Expenditures on a Child According to Age

Age of Child (years)	Family Expenditure on Child
0-2	$20,500
3-5	$20,750
6-8	$20,640
9-11	$21,750
12-14	$22,500
15-17	$24,500

What is the mean absolute deviation, to the nearest hundredth, of the family expenditures on a child?

A 813.02
B 1,151.11
C 1,409.27
D 21,773.33

42 **Which function has exactly one zero?**

A $f(x) = 5(x + 6)(x - 6)$

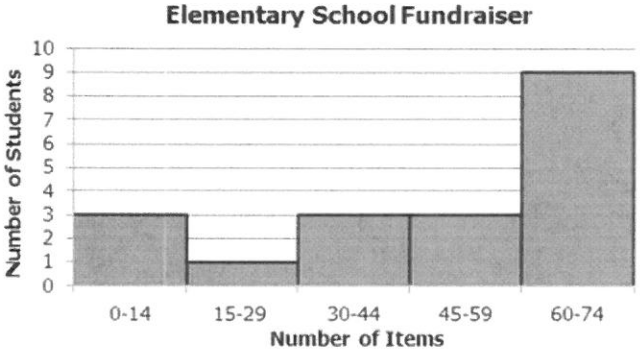
B $f(x) = x^2 + 4x + 4$

C $f(x) = x^2 - 9$

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

43 Directions: Click on a box to choose each answer you want to select. You must select all correct answers.

An elementary school had a fundraiser and the amount of items that each student sold is recorded in the histogram below. The mean amount of items sold is 49.1, and the standard deviation of the data is 23.8 items. Which intervals may have data points within 0.25 standard deviations of the mean?



0 - 14
15 - 29
30 - 44
45 - 59
60 - 74

44 **Jose recorded the number of raffle tickets that his classmates sold at the football game in the stem-and-leaf plot shown.**

Stem	Leaf
0	1 1 2 2 3 4
1	6 7 8 8 9
2	2 3 4 5 5 6 7
3	8 8 8 9 9

Key
1|6 = 16 tickets

What is the approximate variance and standard deviation of the data set?

A Variance = 7.08, standard deviation = 2.66

B Variance = 31.25, standard deviation = 5.59

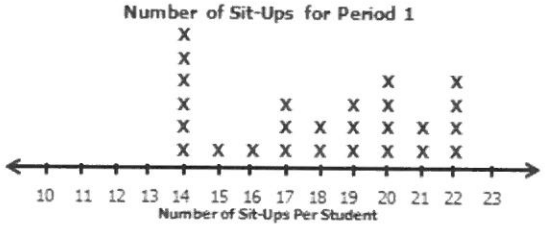
C Variance = 165.38, standard deviation = 12.86

D Variance = 408.85, standard deviation = 20.22

45 **Given a data set with a standard deviation of 18.0, a mean of 42.0, and a z-score of 1.6, what is the value of the element associated with the z-score?**

A 13.2
B 28.8
C 67.2
D 70.8

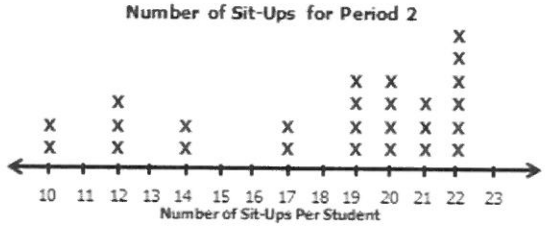
46 **Mr. Thomas recorded the number of sit ups that his students could do in a specified time for each class period. The data for his first period class is shown below.**



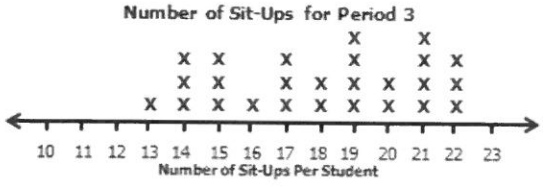
Mean = 18.04
Standard Deviation =2.86
Mean Absolute Deviation =2.50

Which graph most likely displays data of a classroom with a standard deviation of 3.99 ?

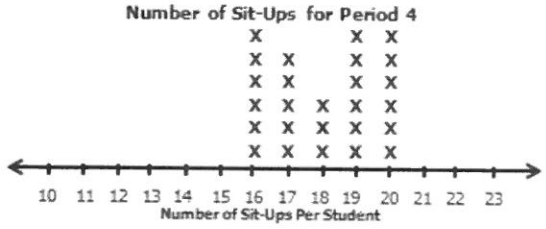
A



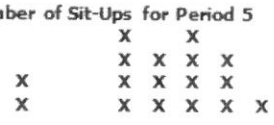
B

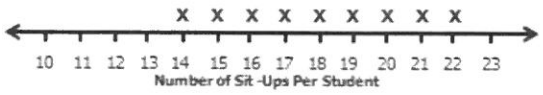


C

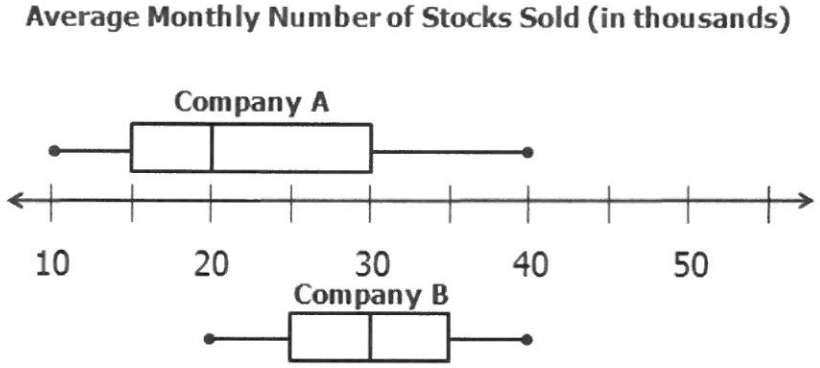


D





47 **The average monthly number of stocks sold for two companies were collected for a year. The data for these two companies were summarized in these box-and-whisker plots.**



Which statement is true?

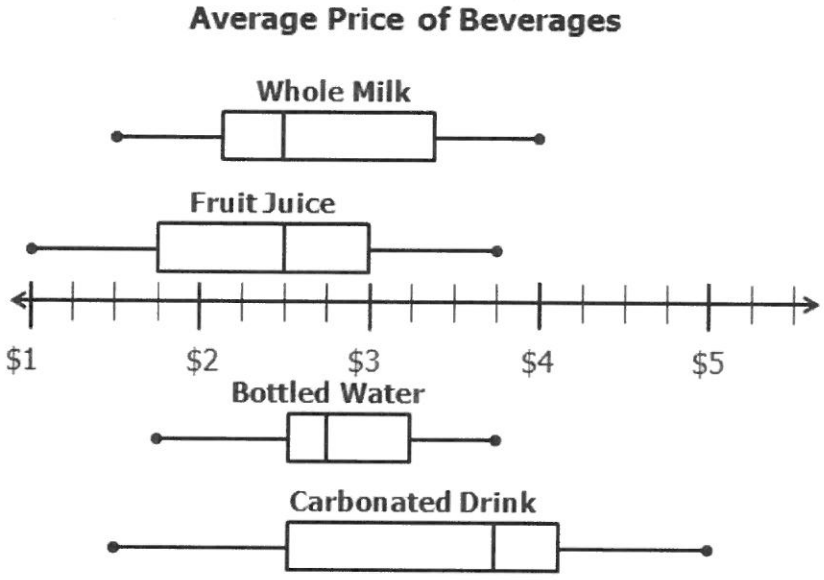
A The upper quartile of the num er of stocks sold for Company A is equal to the lower quartile of the num er of stocks sold for Company B.

B The difference in the maximum num er of stocks sold for Company A and Company B is 10,000.

C The range in the num er of stocks sold is greater for Company A than for Company B.

D The median num er of stocks sold for Company A is 5,000 less than the median num er of stocks sold for Company B.

48 **Ben recorded the price of 4 types of beverages at 11 different stores. His data is summarized in the box-and-whisker plots shown.**



If Ben does NOT spend more than $2.50 on a beverage, then —

A the same percentage of whole milks and fruit juices are within his price range.

B a higher percentage of ottled waters is within his price range than fruit juices.

C a lower percentage of whole milks is within his price range than car onated drinks.

D a higher percentage of ottled waters is within his price range than car onated drinks.

49 **Beverly High School recorded the number of students who attended the monthly student council meeting throughout the school year in the table shown.**

Student Council Meeting Attendance

Month of School Year (t)	Number of Students (s)
1	220
2	224
3	226
4	224
5	221
6	215
7	209
8	200
9	190
10	176

Which equation most closely represents a curve of best fit for the data?

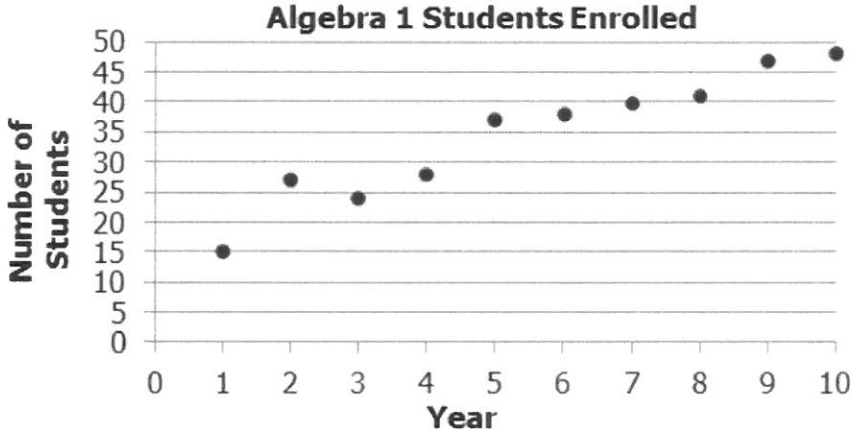
A $s = t^2 + 6t + 216$

B $s = -4t + 238$

C $s = -t^2 + 6t + 216$

D $s = 4t + 238$

50 **Over the last ten years, Campbell Middle School recorded the number of 8th grade students enrolled in Algebra 1.**



Using the equation of the curve of best fit, approximately how many students will be enrolled in Algebra 1 on year 16 if the trend continues?

A 52

B 70

C 100

D 120