

High School Math TEKS Focus

Objective One

Algebra (b1A)

Describe independent and dependent quantities in functional relationships

42 For a car traveling at a speed of 50 miles per hour, the relationship between the distance traveled, d , and the time traveled, t , is described by the function $d = 50t$. Which statement is true?

F The time traveled depends on the distance traveled.

G The distance traveled depends on the time traveled.

H The speed of the car depends on the distance traveled.

J The speed of the car depends on the time traveled.

9th Grade 2003

19 A function is described by the equation $f(x) = x^2 + 5$. The replacement set for the independent variable is $\{1, 5, 7, 12\}$. Which of the following is contained in the corresponding set for the dependent variable?

A 0

B 6

C 7

D 15

10th Grade 2003

23 The volume of a rectangular prism is given by the function $V = lwh$. Which statement is true?

A The volume of the prism depends on the product of only the length and the width.

B The volume of the prism depends on the product of only the length and the height.

C The volume of the prism depends on the product of the length, the width, and the height.

D The volume of the prism depends on the product of only the width and the height.

10th Grade 2004

55 A department store had a 20%-off sale on all clothing items. Which statement best represents the functional relationship between the sale price of an article of clothing and the original price?

A The original price is dependent on the sale price.

B The sale price is dependent on the original price.

C The sale price and the original price are independent of each other.

D The relationship cannot be determined.

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Objective One

Algebra (b1B)

Gather and record data, or use data sets to determine functional (systematic) relationships between quantities

- 49 Students in a science class recorded lengths of a stretched spring, as shown in the table below.

Length of Stretched Spring

Distance Stretched, x (centimeters)	Weight, y (newtons)
0	0
2	10
4	20
7	35
9	45
10	50

Which equation best represents the relationship between distance stretched, x , and the weight on the spring, y ?

- A $y = -5x$
- B $y = \frac{5}{x}$
- C $y = 5x^2$
- D $y = 5x$

9th Grade 2003

- 41 Which equation could be used to generate this table of values?

x	y
-1	2
0	1
1	2
2	5

- A $y = -2x$
- B $y = 2x + 1$
- C $y = x + 1$
- D $y = x^2 + 1$

9th Grade 2004

- 50 Which equation best describes the relationship between the corresponding values of x and y shown in the table?

x	y
-2	-12
0	-6
1	-3
4	6

- F $y = x - 10$
- G $y = 2x - 8$
- H $y = 3x - 6$
- J $y = x^2 - 8$

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Objective One

- 45 Which equation best describes the relationship between x and y in this table?

x	y
-4	-11
-1	-2
2	7
5	16

- A $y = \frac{1}{3}x + 1$
- B $y = \frac{1}{3}x - 1$
- C $y = 3x - 1$
- D $y = 3x + 1$

10th Grade 2003

- 35 Troy borrowed money from his father so that he could buy a used car. The table shows the remaining balance, b , of Troy's loan after each payment.

Troy's Loan Balance

Number of Payments, p	Loan Balance, b
1	\$3910
2	\$3685
3	\$3460
4	\$3235
5	\$3010
6	\$2785

Which function can be used to describe this relationship?

- A $b = 3910 + 225p$
- B $b = 4135 - 225p$
- C $b = 2785 + 225p$
- D $b = 3685 - 225p$

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- 28 An equation can be used to find the total cost of buying square-foot floor tiles to cover an area of floor. Using the table below, find the equation that best represents y , the total cost, as a function of x , the number of square feet to be covered.

Number of Square Feet (x)	Total Cost (y)
1800	\$630
2300	\$805
2900	\$1015

F $x = 0.35y$

G $y = 0.35x$

H $x = 2.86y$

J $y = 2.86x$

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- 45 The table shows the number of slices of pepperoni placed on each size of pizza at Pepe's Pizza Shop.

Size of Pizza	Radius of Pizza (inches)	Number of Pepperoni Slices
Single	2	5
Small	4	17
Medium	5	26
Large	8	65
Extra large	10	101

Let r represent the radius of the pizza and let n represent the number of slices of pepperoni. Identify the equation that best represents the relationship between the radius and the number of slices of pepperoni.

A $r = 2n + 1$

B $n = 2r + 1$

C $r = n^2 + 1$

D $n = r^2 + 1$

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- 31** Which equation best describes the relationship between x and y shown in the table below?

x	y
1	3
2	12
4	48
6	108
9	243

A $y = 3x$

B $x = 3y$

C $x = 3y^2$

D $y = 3x^2$

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Objective One

Algebra (b1C)

Describe functional relationships for given problem situations and write equations or inequalities to answer questions arising from the situations

- 45 The Alejo family budgeted \$2000 for their vacation. Their budget consisted of \$800 for travel costs and \$75 per day for other expenses. Which inequality represents the number of days, x , the family could have stayed on vacation?

- A $800 + 75x \leq 2000$
- B $800x + 75 \geq 2000$
- C $800x - 75 \geq 2000$
- D $800 - 75x \leq 2000$

9th Grade 2003

- 27 The temperature in degrees Celsius, C , is $\frac{5}{9}$ of the difference between the temperature in degrees Fahrenheit, F , and the constant 32. Which equation best represents this relationship?

- A $C = \frac{5}{9} - (F + 32)$
- B $C = \frac{5}{9}(F + 32)$
- C $C = \frac{5}{9}(F - 32)$
- D $C = \frac{5}{9} - F + 32$

9th Grade 2004

- 7 Vicki works as a salesclerk in a clothing store. She earns \$10 per hour plus a commission of 6% of her total sales. Which equation represents e , her total earnings when she works h hours and sells a total of d dollars in merchandise?

- A $e = 10h + 0.06d$
- B $e = 10h + 0.6d$
- C $e = 6h + 10d$
- D $e = 0.06h + 10d$

10th Grade 2003

- 49 A candy company sells chocolate-covered cherries in a box. The empty box weighs 4.2 ounces. Each piece of candy weighs at least 1.8 ounces. Which inequality best describes the total weight in ounces, w , of a box of chocolate-covered cherries in terms of c , the number of candies in the box?

- A $w \geq 1.8c + 4.2$
- B $w \geq 1.8c - 4.2$
- C $w \geq 4.2c + 1.8$
- D $w \geq 4.2c - 1.8$

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- 11 Eddie's Towing Company charges \$40 to hook a vehicle to the tow truck and \$1.70 for each mile the vehicle is towed. Which equation best represents the relationship between the number of miles towed, m , and the total charges, c ?

- A $c = 40 + 1.70$
- B $c = 40 + 1.70m$
- C $c = 40m + 1.70m$
- D $c = 40m + 1.70$

11th Grade 2003

- 1 An artist studies human proportions in order to make realistic drawings. He observes that a person's kneeling height, y , is $\frac{3}{4}$ of the person's standing height, x . Which equation best represents this relationship?

- A $y = \frac{3}{4}x$
- B $y = -\frac{3}{4}x$
- C $y = x - \frac{3}{4}$
- D $y = x + \frac{3}{4}$

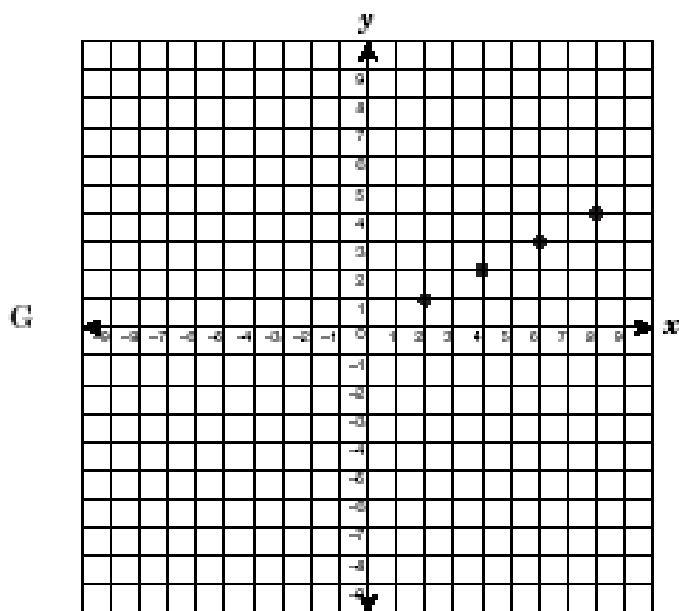
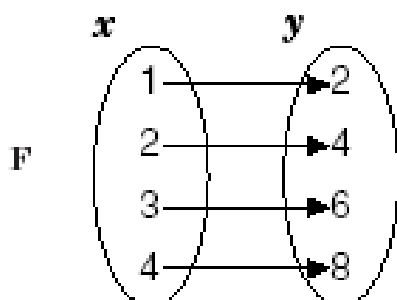
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Objective One

Algebra (b1D)

Represent relationships among quantities using concrete models, tables, graphs, diagrams, verbal descriptions, equations, & inequalities

- 24 The function $f(x) = \{(1, 2), (2, 4), (3, 6), (4, 8)\}$ can be represented in several other ways. Which is NOT a correct representation of the function $f(x)$?



H x is a natural number less than 5 and y is twice x

J $y = 2x$ and the domain is $\{1, 2, 3, 4\}$

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- 24 Jerome received a gift card for \$20 worth of video rentals from a video store. If the cost of renting a video is \$2.50, which table best describes b , the balance remaining on the gift card after he rents n videos?

F

n	b
0	\$20.00
1	\$17.50
2	\$15.00
4	\$10.00
6	\$5.00

H

n	b
1	\$17.50
2	\$15.00
3	\$13.50
4	\$11.00
5	\$8.50

G

n	b
0	\$20.00
2	\$17.50
4	\$15.00
6	\$12.50
8	\$10.00

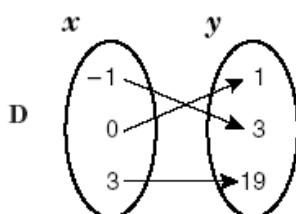
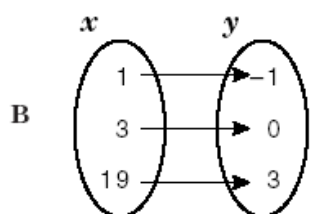
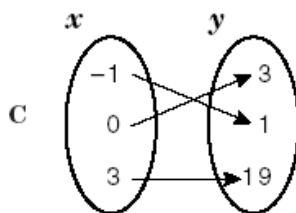
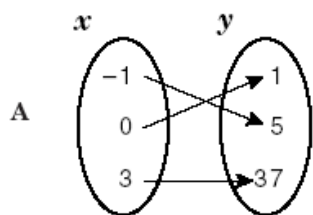
J

n	b
0	\$20.00
1	\$15.00
4	\$10.00
6	\$2.50
8	\$0.00

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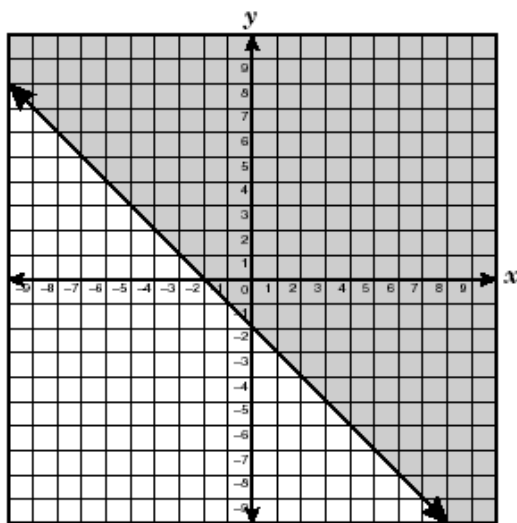
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43 Which mapping best represents the function $y = 2x^2 + 1$ when the replacement set for x is $\{-1, 0, 3\}$?



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20 Which inequality best describes the graph shown below?



F $y \geq -2x$

G $y \geq -x - 2$

H $y \geq -2x - 2$

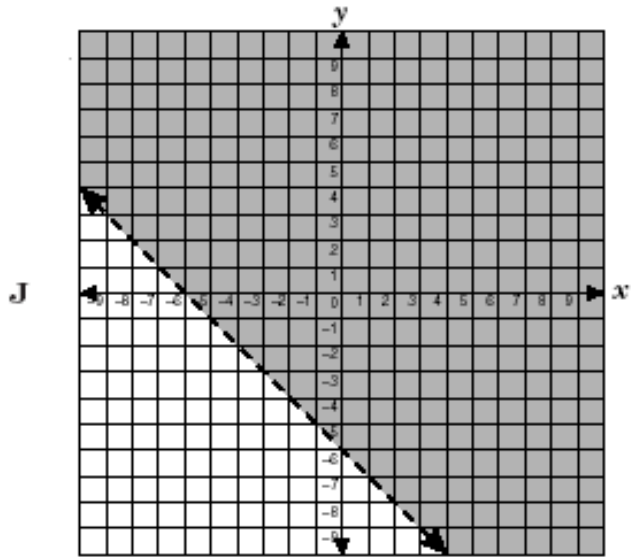
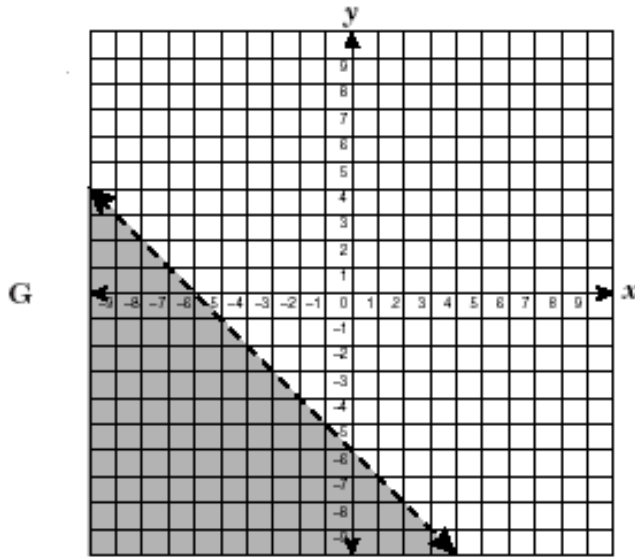
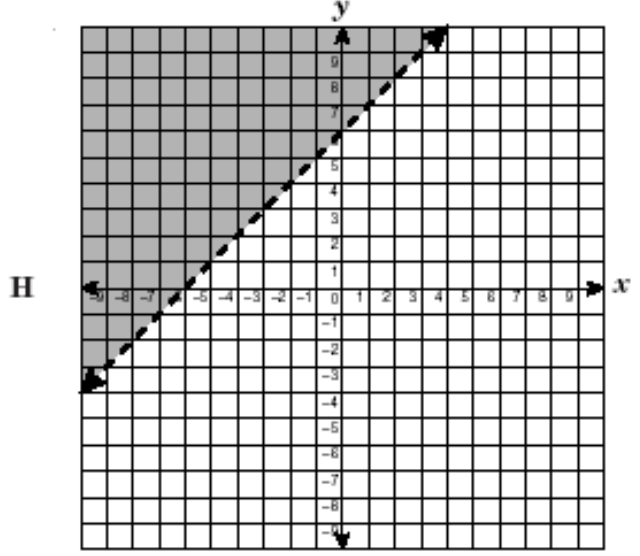
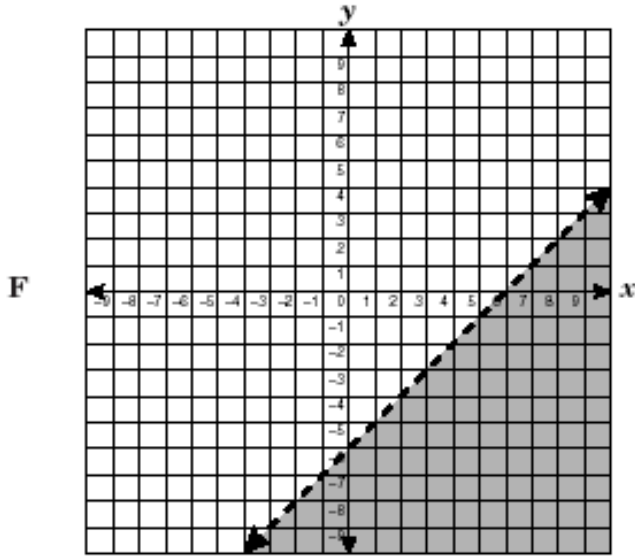
J $y \geq x - 2$

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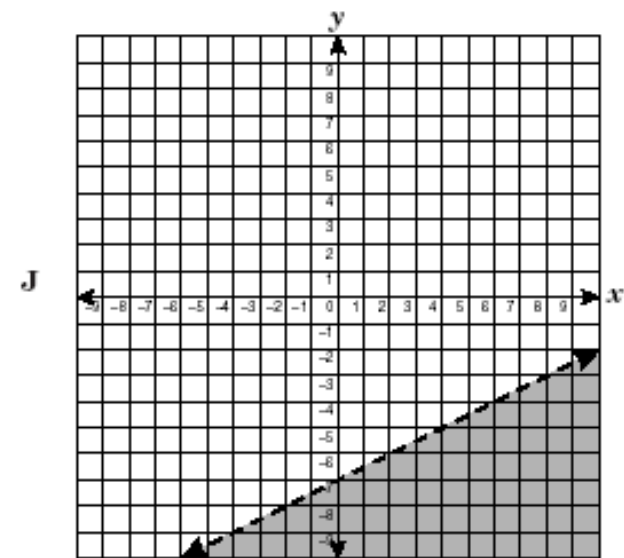
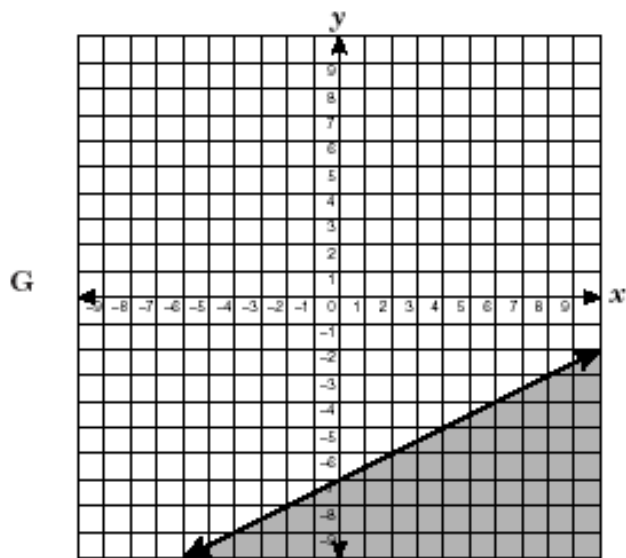
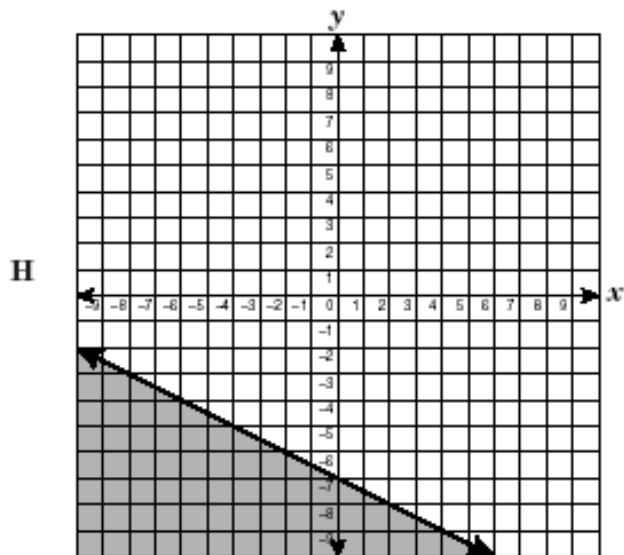
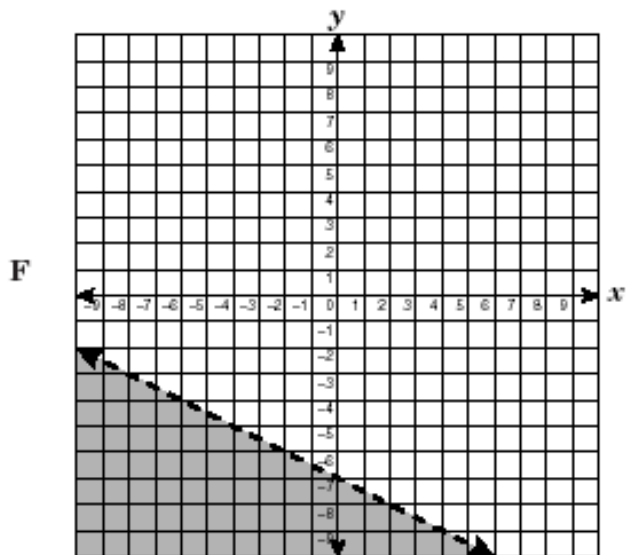
50 Which graph best represents all the pairs of numbers (x, y) such that $x + y < -6$?



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20 Which graph best represents the inequality $x + 2y \leq -14$?



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Algebra (b1E)

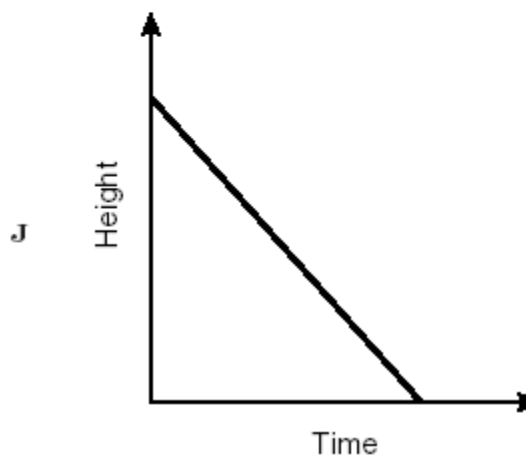
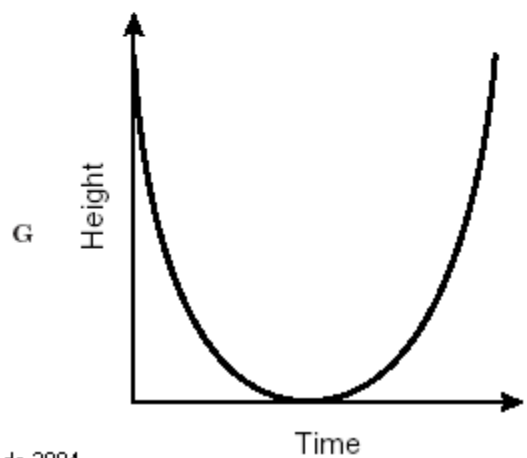
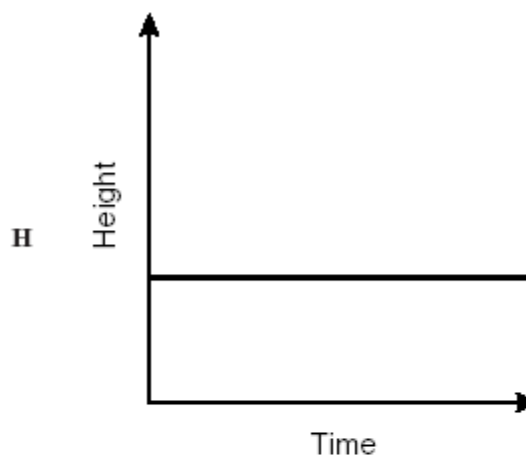
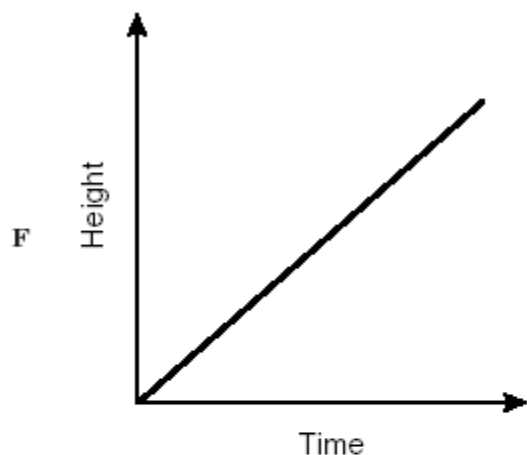
Interpret and make inferences from functional relationships

25 Which is always a correct conclusion about the quantities in the function $y = x + 4$?

- A The variable x is always 4 more than y .
- B When the value of x is negative, the value of y is also negative.
- C The variable y is always greater than x .
- D As the value of x increases, the value of y decreases.

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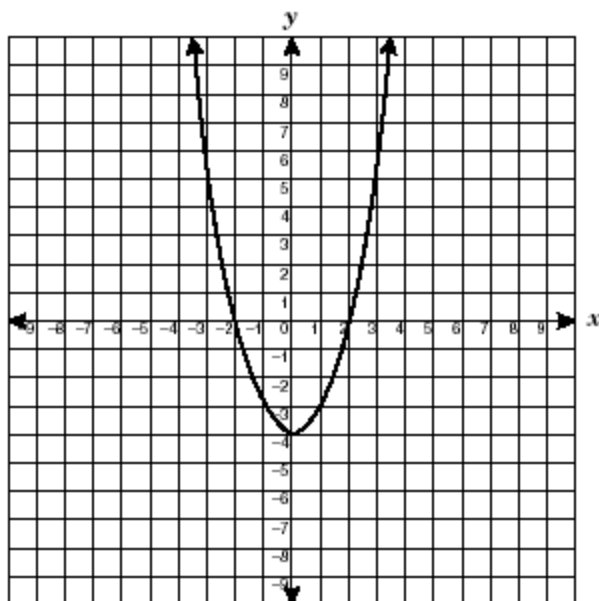
46 Which graph best represents the relationship between the height of a burning candle and the amount of time that passes as the candle burns?



9th grade 2004

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5 Jake studied the parabola shown below.

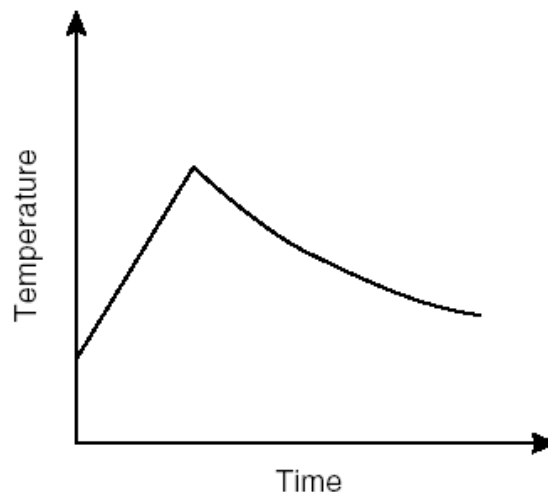


Which is an accurate conclusion that Jake could make about this parabola?

- A The vertex is at $(-2, 0)$.
- B The minimum value is at $(0, -4)$.
- C The maximum value is at $(2, 0)$.
- D The axis of symmetry is the x -axis.

10th grade 2003

51 The graph below best represents which of the following relationships between temperature and time?

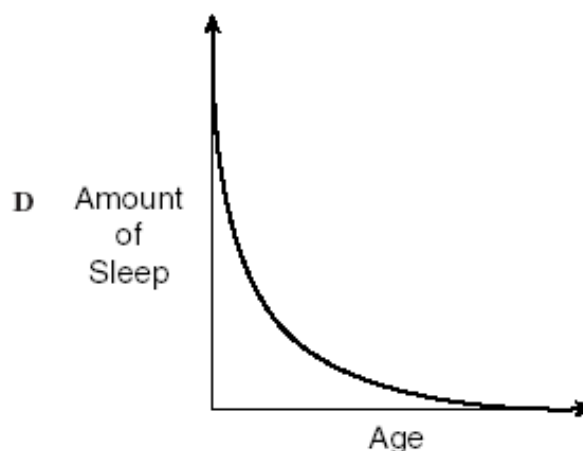
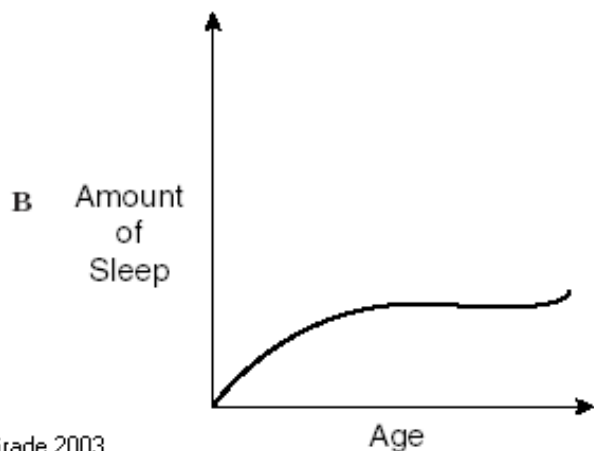
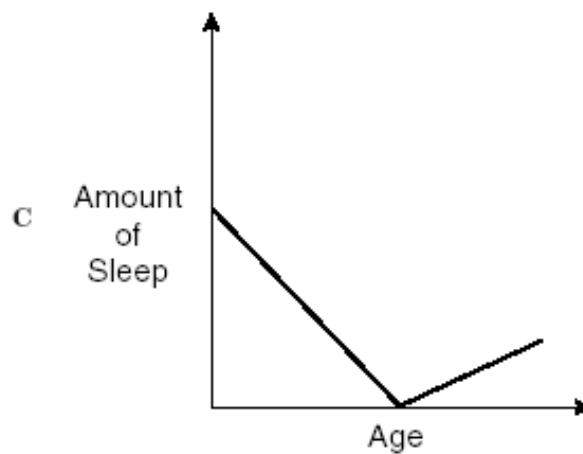
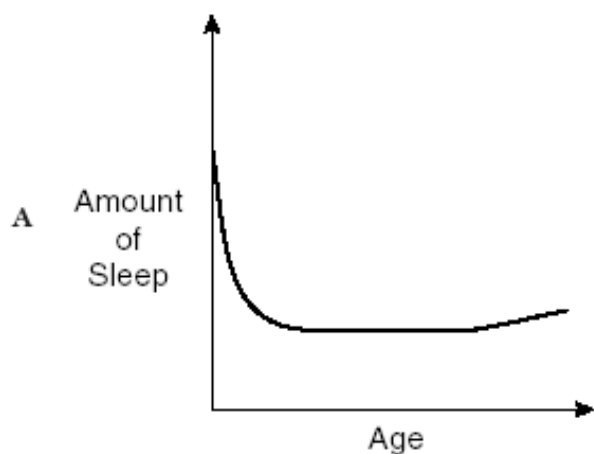


- A Oven temperature while a cake is baking
- B Temperature of water that is heated on a stove, removed, and then allowed to cool
- C Temperature of a container of hot tea after placing several cubes of ice in it
- D Room temperature of a gym after the air conditioner is turned on

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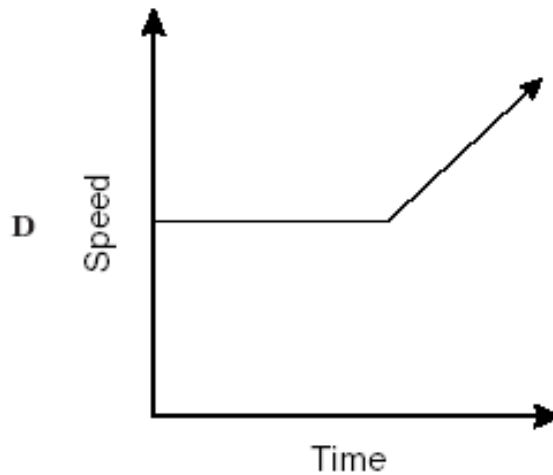
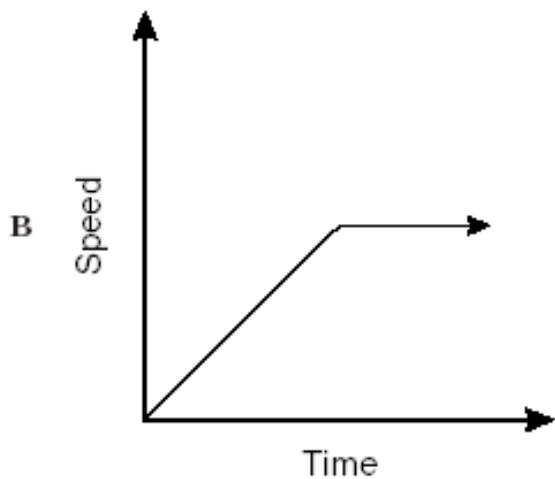
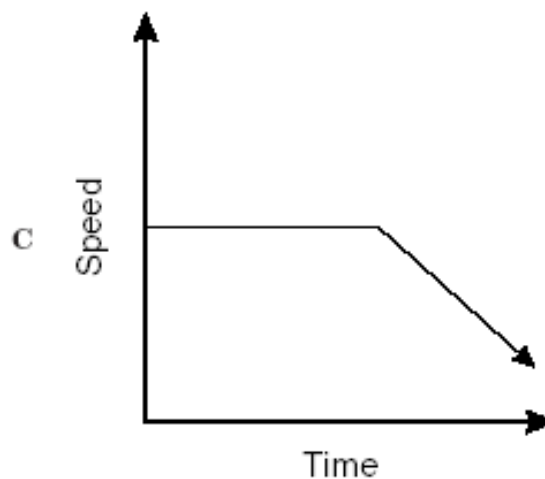
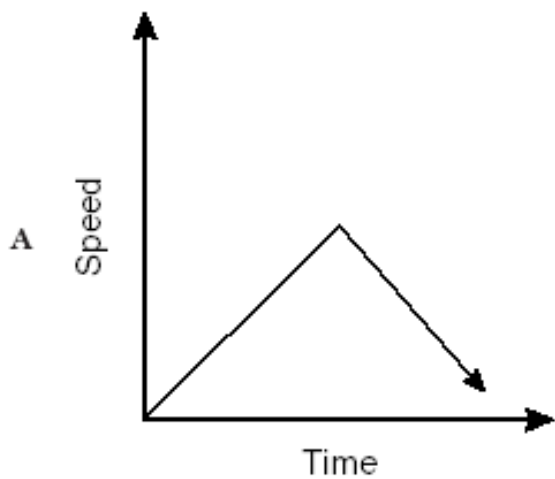
- 59 Gina did a research project on how age affects sleep patterns. She concluded that as people age, they sleep fewer hours until a point in adulthood when the number of hours remains constant. Gina also found that after the age of 70 the amount of time spent sleeping increases slightly. Which graph best shows the results of Gina's research?



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- 3 Karen jogs at a steady pace up a hill in her neighborhood. She then runs down the hill, and her speed increases. Which graph best describes this situation?



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