

February Take Home Packet

Name: _____

Date: _____

February Break Take Home Packet

1. Which equation could be used to solve the problem below?

If three times a number is increased by 24, the result is 4 less than seven times the number.

- A. $3(x + 24) = 7x - 4$ B. $3x + 24 = 4 - 7x$
 C. $3x + 24 = 7x - 4$ D. $27x = 7x - 4$

2. If n is an odd integer, which equation can be used to find three consecutive odd integers whose sum is -3 ?

- A. $n + (n + 1) + (n + 3) = -3$
 B. $n + (n + 1) + (n + 2) = -3$
 C. $n + (n + 2) + (n + 4) = -3$
 D. $n + (n + 2) + (n + 3) = -3$

3. If Angelina's weekly allowance is d dollars, which expression represents her allowance, in dollars, for x weeks?

- A. dx B. $7dx$
 C. $x + 7d$ D. $\frac{d}{x}$

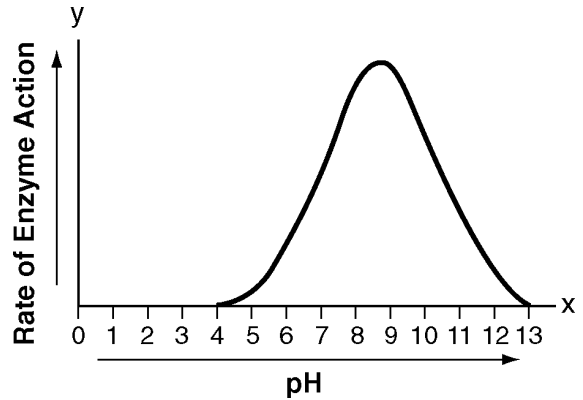
4. The product of $2x - 3$ and $x + 4$ can be expressed as

- A. $2x^2 + 5x - 12$ B. $3x + 1$
 C. $2x^2 + x - 12$ D. $2x^2 - 12$

5. Which expression is equivalent to $(3x^2)^3$?

- A. $9x^5$ B. $9x^6$ C. $27x^5$ D. $27x^6$

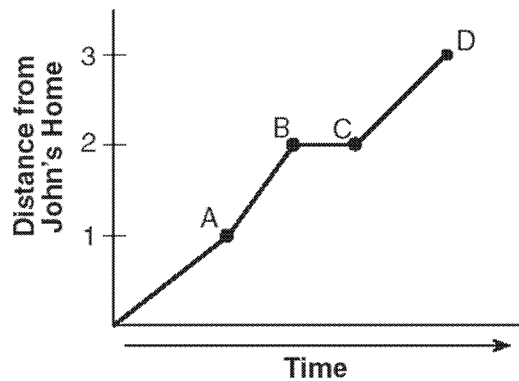
6. The effect of pH on the action of a certain enzyme is shown on the accompanying graph.



What is the domain of this function?

- A. $4 \leq x \leq 13$ B. $4 \leq y \leq 13$
 C. $x \geq 0$ D. $y \geq 0$

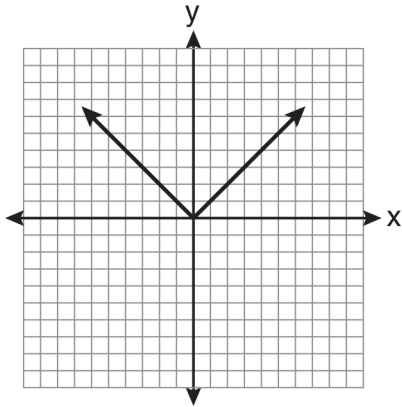
7. John left his home and walked 3 blocks to his school, as shown in the accompanying graph.



What is one possible interpretation of the section of the graph from point B to point C ?

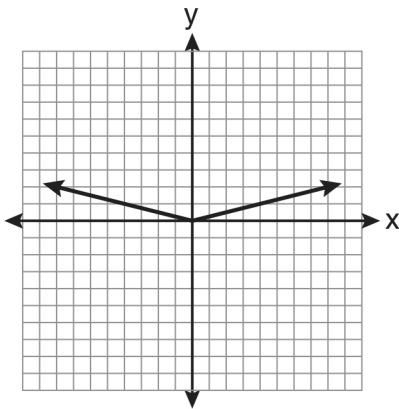
- A. John arrived at school and stayed throughout the day.
 B. John waited before crossing a busy street.
 C. John returned home to get his mathematics homework.
 D. John reached the top of a hill and began walking on level ground.

8. The graph of the equation $y = |x|$ is shown in the diagram below.

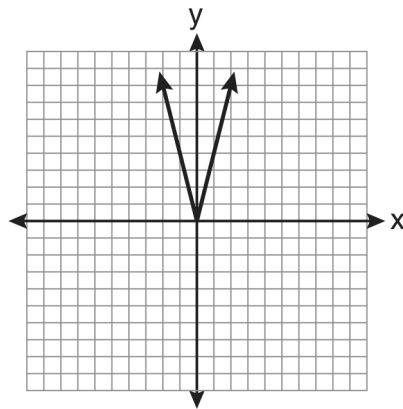


Which diagram could represent a graph of the equation $y = a|x|$ when $-1 < a < 0$?

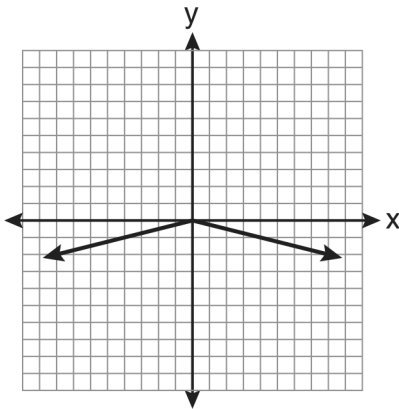
A.



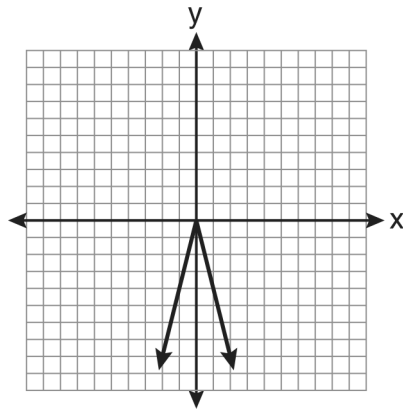
B.



C.



D.



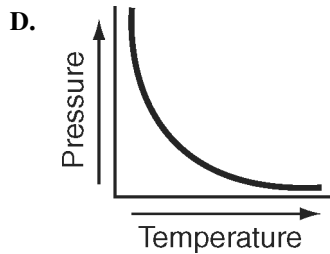
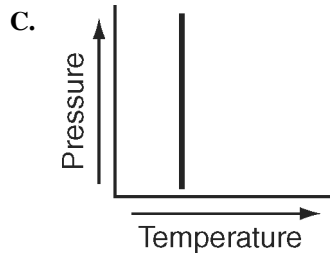
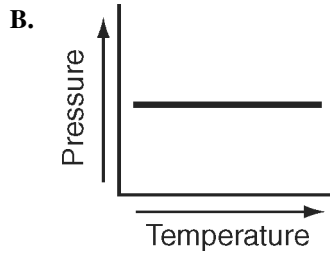
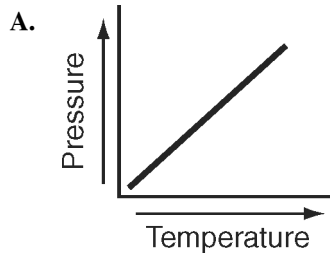
9. At Genesee High School, the sophomore class has 60 more students than the freshman class. The junior class has 50 fewer students than twice the students in the freshman class. The senior class is three times as large as the freshman class. If there are a total of 1,424 students at Genesee High School, how many students are in the freshman class?

A. 202 B. 205 C. 235 D. 236

10. Given the relation $R = \{(-2, 3), (a, 4), (1, 9), (0, 7)\}$. Which placement for a makes this relation a function

A. 1 B. -2 C. 0 D. 4

11. Each graph below represents a possible relationship between temperature and pressure. Which graph does *not* represent a function?



12. Which ordered pair is in the solution set of the following system of linear inequalities?

$$y < 2x + 2$$

$$y \geq -x - 1$$

- A. (0, 3) B. (2, 0)
C. (-1, 0) D. (-1, -4)

13. The ninth grade class at a local high school needs to purchase a park permit for \$250.00 for their upcoming class picnic. Each ninth grader attending the picnic pays \$0.75. Each guest pays \$1.25. If 200 ninth graders attend the picnic, which inequality can be used to determine the number of guests, x , needed to cover the cost of the permit?

A. $0.75x - (1.25)(200) \geq 250.00$

B. $0.75x + (1.25)(200) \geq 250.00$

C. $(0.75)(200) - 1.25x \geq 250.00$

D. $(0.75)(200) + 1.25x \geq 250.00$

14. Which ordered pair is the solution to this system of equations?

$$y = x + 4$$

$$x + y = 2$$

A. (1, 5)

B. (0, 2)

C. (-1, 3)

D. (-4, 0)

15. Which ordered pair is the solution of this system of equations

$$3x + 27 = 4$$

$$-2x + 2y = 24$$

A. (-4, 8)

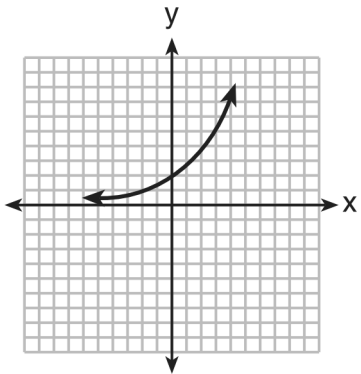
B. (-4, -8)

C. (2, -1)

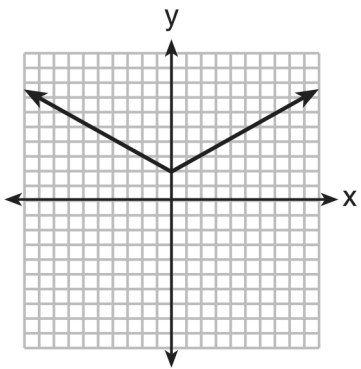
D. (2, -5)

16. Which graph represents an absolute value equation?

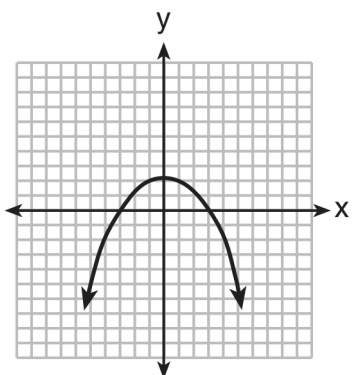
A.



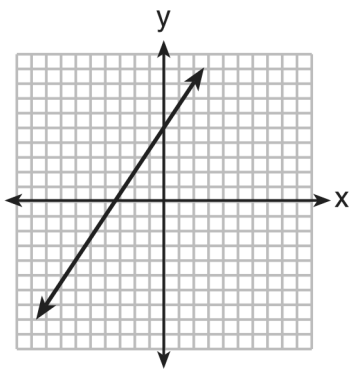
B.



C.



D.

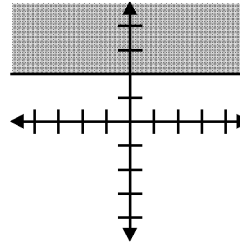


17. If $f(x) = |x^3 - 3|$, then $f(-1)$ is equivalent to

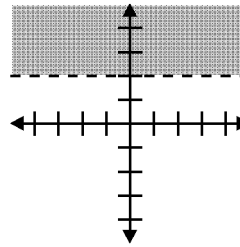
- A. 0 B. 2 C. -2 D. 4

18. Which graph represents the inequality $x \geq 2$?

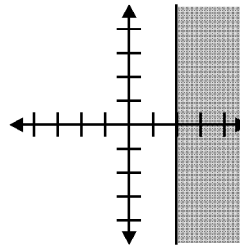
A.



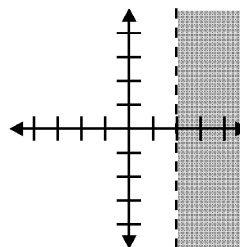
B.



C.



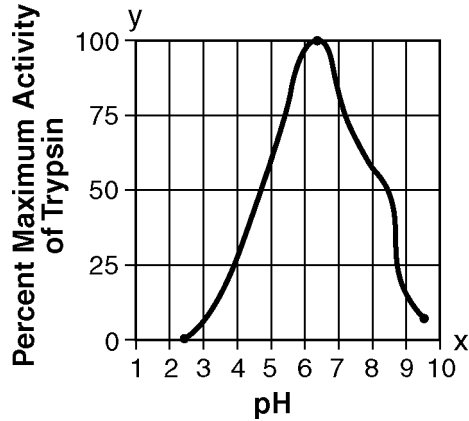
D.



19. If $x = 13$, then the value of $\sqrt{x - 5}$ is

- A. a rational number
 B. an irrational number
 C. undefined
 D. an integer

27. Data collected during an experiment are shown in the accompanying graph.

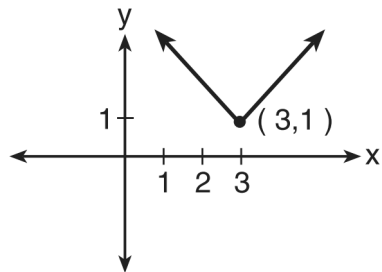


What is the range of this set of data?

- A. $2.5 \leq y \leq 9.5$ B. $2.5 \leq x \leq 9.5$
 C. $0 \leq y \leq 100$ D. $1 \leq x \leq 10$
28. Rashawn bought a CD that cost \$18.99 and paid \$20.51, including sales tax. What was the rate of the sales tax?
- A. 5% B. 2% C. 3% D. 8%
29. Jack bought 3 slices of cheese pizza and 4 slices of mushroom pizza for a total cost of \$12.50. Grace bought 3 slices of cheese pizza and 2 slices of mushroom pizza for a total cost of \$8.50. What is the cost of one slice of mushroom pizza?

- A. \$1.50 B. \$2.00 C. \$3.00 D. \$3.50

30. Which equation is represented by the accompanying graph?

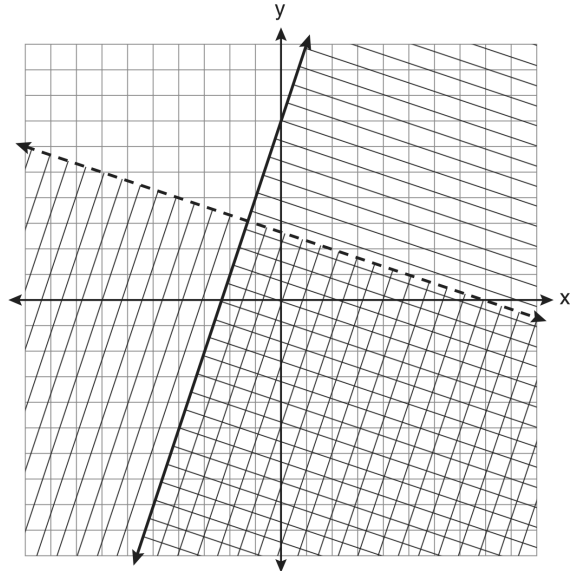


- A. $y = |x| - 3$ B. $y = (x - 3)^2 + 1$
 C. $y = |x + 3| - 1$ D. $y = |x - 3| + 1$

31. The formula to determine continuously compounded interest is $A = Pe^{rt}$, where A is the amount of money in the account, P is the initial investment, r is the interest rate, and t is the time, in years. Which equation could be used to determine the value of an account with an \$18,000 initial investment, at an interest rate of 1.25% for 24 months?

- A. $A = 18,000e^{1.25 \cdot 2}$
 B. $A = 18,000e^{1.25 \cdot 24}$
 C. $A = 18,000e^{0.0125 \cdot 2}$
 D. $A = 18,000e^{0.0125 \cdot 24}$

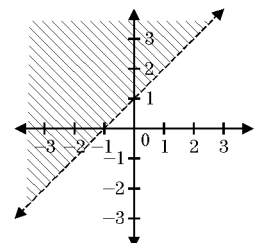
32. Which ordered pair is in the solution set of the system of linear inequalities graphed below?



- A. (1, -4) B. (-5, 7)
 C. (5, 3) D. (-7, -2)

33. The accompanying diagram shows a graph of which inequality?

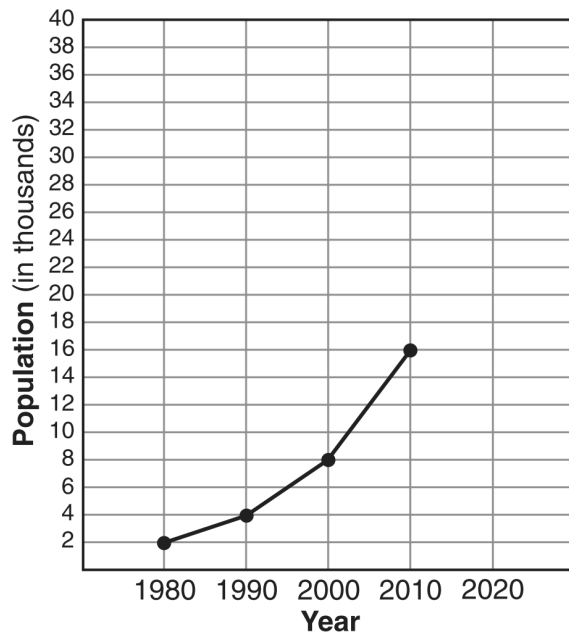
- A. $y < x + 1$
 B. $y > x + 1$
 C. $y \leq x + 1$
 D. $y \geq x + 1$



34. The sentence $3 + (5 + 2) = (5 + 2) + 3$ illustrates
- the commutative property of addition
 - the associative property of addition
 - the distributive property of multiplication over addition
 - the additive identity element

35. Which quadrant will be completely shaded in the graph of the inequality $y \leq 2x$?
- Quadrant I
 - Quadrant II
 - Quadrant III
 - Quadrant IV

36. The population growth of Boomtown is shown in the accompanying graph.



If the same pattern of population growth continues, what will the population of Boomtown be in the year 2020?

- 20,000
- 32,000
- 40,000
- 64,000

37. On a graph, which point is on the line of the equation $2x + 3y = 4$?

- $(-2, 5)$
- $(5, 2)$
- $(5, -2)$
- $(-5, 2)$

38. The New York Volleyball Association invited 64 teams to compete in a tournament. After each round, half of the teams were eliminated. Which equation represents the number of teams, t , that remained in the tournament after r rounds?

- $t = 64(r)^{0.5}$
- $t = 64(-0.5)^r$
- $t = 64(1.5)^r$
- $t = 64(0.5)^r$

39. Tara buys two items that cost d dollars each. She gives the cashier \$20. Which expression represents the change she should receive?

- $20 - 2d$
- $20 - d$
- $20 + 2d$
- $2d - 20$

40. When Albert flips open his mathematics textbook, he notices that the product of the page numbers of the two facing pages that he sees is 156. Which equation could be used to find the page numbers that Albert is looking at?

- $x + (x + 1) = 156$
- $(x + 1) + (x + 2) = 156$
- $(x + 1)(x + 3) = 156$
- $x(x + 1) = 156$