

Name: _____ Class: _____ Date: _____

ALGEBRA 1
WINTER PACKET

Directions:

- Read and answer the questions carefully
- Record your answers to this cover page
- Show All Your Work to receive full credit

QUESTIONS	ANSWER
1	
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QUESTIONS	ANSWER
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Score	%

Winter Break Homework

IS 220

Name: _____

Date: _____

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

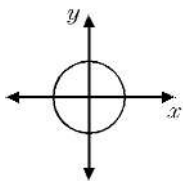
- A. 0 B. 2 C. -2 D. 4

2. The domain for $f(x) = x^2 - 3$ is $0 \leq x < 4$. The smallest value in the range of $f(x)$ is

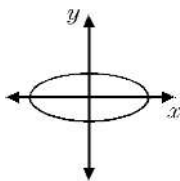
- A. 0 B. 16 C. -3 D. 4

3. Which graph illustrates a quadratic relation whose domain is all real numbers?

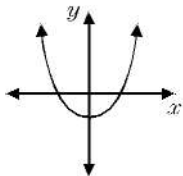
A.



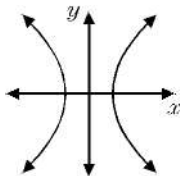
B.



C.



D.



4. If the domain of $f(x) = 2x + 1$ is $\{-2 \leq x \leq 3\}$, which integer is *not* in the range?

- A. -4 B. -2 C. 0 D. 7

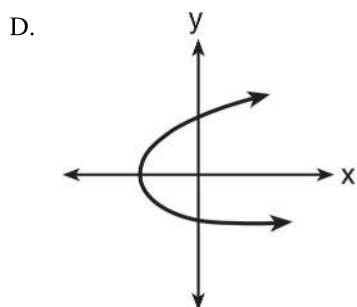
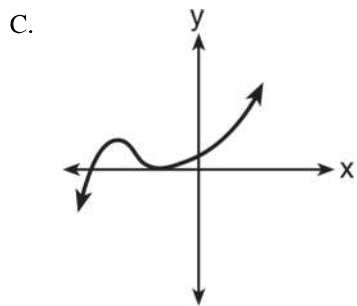
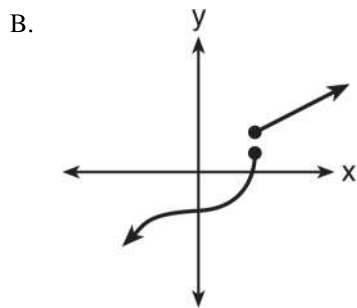
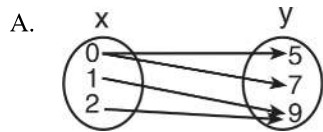
5. The sum of two consecutive integers is -1. the smaller integer is

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

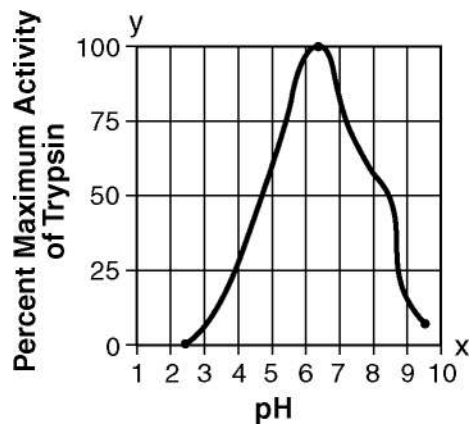
6. The ages of three brothers are consecutive even integers. Three times the age of the youngest brother exceeds the oldest brother's age by 48 years. What is the age of the *youngest* brother?

- A. 14 B. 18 C. 22 D. 26

7. Which diagram represents a relation in which each member of the domain corresponds to only one member of its range?



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

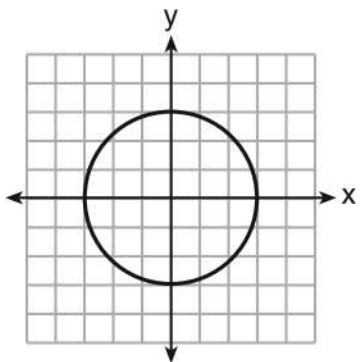


What is the range of this set of data?

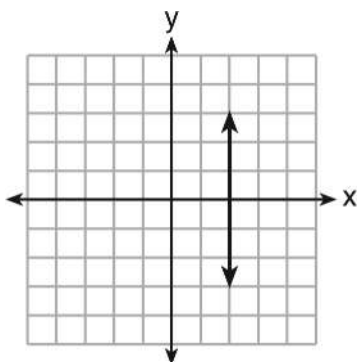
- A. $2.5 \leq y \leq 9.5$ B. $2.5 \leq x \leq 9.5$
 C. $0 \leq y \leq 100$ D. $1 \leq x \leq 10$

9. Which graph represents a function?

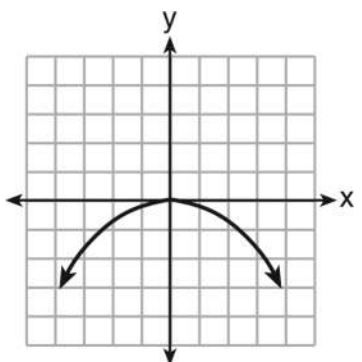
A.



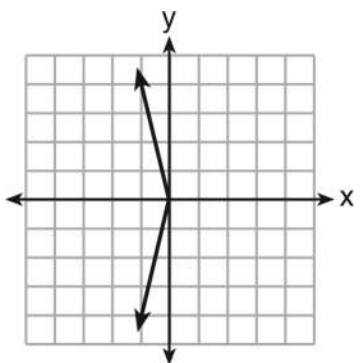
B.



C.

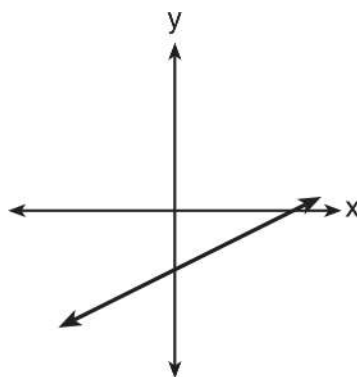


D.

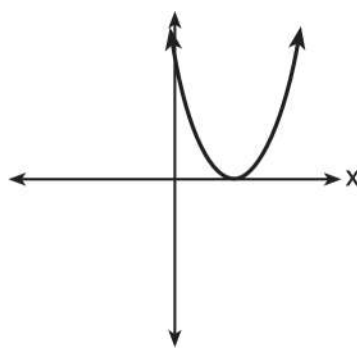


10. Which graph does *not* represent the graph of a function?

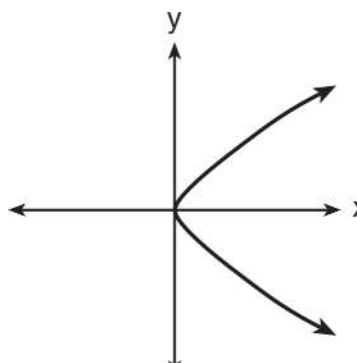
A.



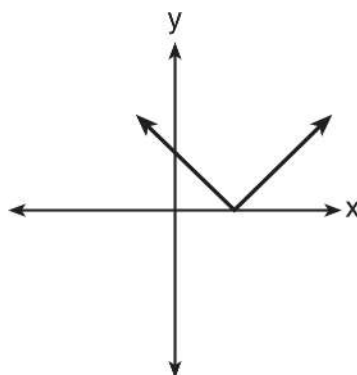
B.



C.



D.



11. Given the relation $\{(8, 2), (3, 6), (7, 5), (k, 4)\}$, which value of k will result in the relation *not* being a function?

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

12. Which expression is equivalent to $(3x^2)^{-1}$?

A. $\frac{1}{3x^2}$ B. $-3x^2$ C. $\frac{1}{9x^2}$ D. $-9x^2$

13. The expression $\frac{6 \times 10^{-7}}{3 \times 10^{-3}}$ is equivalent to

A. 2×10^4 B. 2×10^{10}
C. 2×10^{-4} D. 2×10^{-10}

14. Which expression is equivalent to x^{-4} ?

A. $\frac{1}{x^4}$ B. x^4 C. $-4x$ D. 0

15. What is one-third of 3^6 ?

A. 1^2 B. 3^2 C. 3^5 D. 9^6

16. The size of a certain type of molecule is 0.00009078 inch. If this number is expressed as 9.078×10^n , what is the value of n ?

A. -5 B. 5 C. -8 D. 8

17. According to the 2000 census, the population of New York State was approximately 18,900,000. How is this number expressed in scientific notation?

A. 1890×10^4 B. 18.9×10^6
C. 1.89×10^7 D. 189×10^5

18. A micron is a unit used to measure specimens viewed with a microscope. One micron is equivalent to 0.00003937 inch. How is this number expressed in scientific notation?

A. 3.937×10^{-5} B. 3.937×10^5
C. 3937×10^{-8} D. 3937×10^8

- 19 Two objects are 2.4×10^{20} centimeters apart. A message from one object travels to the other at a rate of 1.2×10^5 centimeters per second. How many seconds does it take the message to travel from one object to the other?

A. 1.2×10^{15} B. 2.0×10^4
C. 2.0×10^{15} D. 2.88×10^{25}

- 20 What is the product of 8.4×10^8 and 4.2×10^3 written in scientific notation?

A. 2.0×10^5 B. 12.6×10^{11}
C. 35.28×10^{11} D. 3.528×10^{12}

- 21 The quotient of (9.2×10^6) and (2.3×10^2) expressed in scientific notation is

A. 4,000 B. 40,000
C. 4×10^3 D. 4×10^4

- 22 . The expression $15 - 3[2 + 6(-3)]$ simplifies to

A. -45 B. -33 C. 63 D. 192

- 23 . The product of $-4a^2b^3$ and $5ab^4$ is

A. a^2b^{12} B. $-20a^2b^7$
C. $-20a^2b^{12}$ D. $-20a^3b^7$

- 24 . If $-21a^6b$ is divided by $-3a^2b$, the quotient is

A. $7a^4$ B. $-7a^3$ C. $7a^3b$ D. $7a^4b$

- 25 . The expression $\frac{-24x^6}{8x^3}$, $x \neq 0$, is equivalent to

A. $3x^2$ B. $-3x^3$ C. $-3x^2$ D. $3x^3$

- 26 . The product of $5x^3y^2$ and $4xy^4$ is

A. $20x^4y^6$ B. $9x^4y^6$
C. $20x^4y^8$ D. $9x^3y^8$

27 . What is the product of $(3x + 2)$ and $(x - 7)$?

- A. $3x^2 - 14$ B. $3x^2 - 5x - 14$
C. $3x^2 - 19x - 14$ D. $3x^2 - 23x - 14$

28 . What is the product of $(c + 8)$ and $(c - 5)$?

- A. $c^2 + 3c - 40$ B. $c^2 - 3c - 40$
C. $c^2 + 13c - 40$ D. $c^2 - 40$

29 . The expression $(a^2 + b^2)^2$ is equivalent to

- A. $a^4 + b^4$ B. $a^4 + a^2b^2 + b^4$
C. $a^4 + 2a^2b^2 + b^4$ D. $a^4 + 4a^2b^2 + b^4$

30 . The expression $(2x + 1)^2 - 2(2x^2 - 1)$ is equivalent to

- A. $4x + 3$ B. $2x + 3$ C. 3 D. -1

31 . What is the value of x in the equation $4(2x + 1) = 27 + 3(2x - 5)$?

- A. 21 B. 9 C. $7\frac{1}{2}$ D. 4

32 . Solve for x : $15x - 3(3x + 4) = 6$

- A. 1 B. $-\frac{1}{2}$ C. 3 D. $\frac{1}{3}$

33 . If $V = \ell wh$, what is the value of V when $\ell = 2$, $w = 3$, and $h = 4x$?

- A. $9x$ B. $24x$ C. $5 + 4x$ D. $6 + 4x$

34 . If $dx - 2 = h$, then x is equal to

- A. $h + \frac{2}{d}$ B. $\frac{h-2}{d}$ C. $\frac{h+2}{d}$ D. $\frac{h}{d} + 2$

35 . If $3x + c = 4$, then x equals

- A. $4 - c$ B. $\frac{4-c}{3}$ C. $\frac{c-4}{3}$ D. $c - 4$

- 36 . In terms of c , y , and a , what is the value of x in the equation $2ax + 2y = c$?

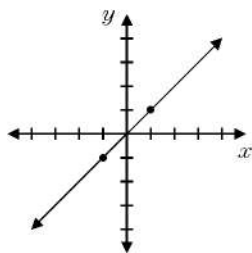
A. $\frac{(c - y)}{a}$ B. $\frac{(c - 2y)}{2a}$
C. $c - 2y - 2a$ D. $\frac{(c + 2y)}{2a}$

37. What is the slope of a line parallel to the line whose equation is $y = 5x + 4$?

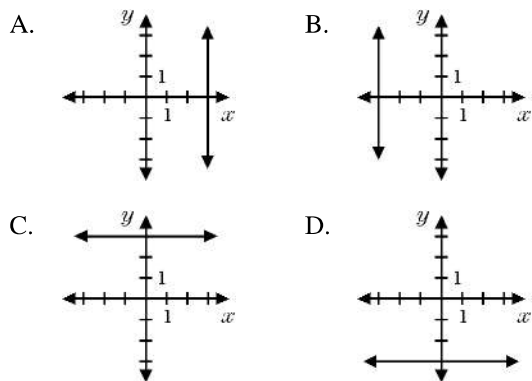
A. $-\frac{4}{5}$ B. $-\frac{5}{4}$ C. 5 D. 4

38. What is an equation of the line whose graph is shown?

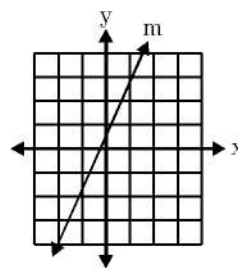
A. $y = -x$
B. $y = 2x$
C. $y = x$
D. $y = 2$



39. Which graph represents the equation $x = -3$?



- 40 . The diagram shows the graph of the line m



Which equation represents this line?

A. $y = 2x + 1$ B. $y = \frac{1}{2}x + 2$
C. $y = -2x + 1$ D. $y = -\frac{1}{2}x + 2$

41. Which is an equation of the line that passes through the point $(5, -2)$ and has a slope of -3 ?

A. $y = -3x - 13$ B. $y = 3x - 13$
C. $y = -3x + 13$ D. $y = 3x + 13$

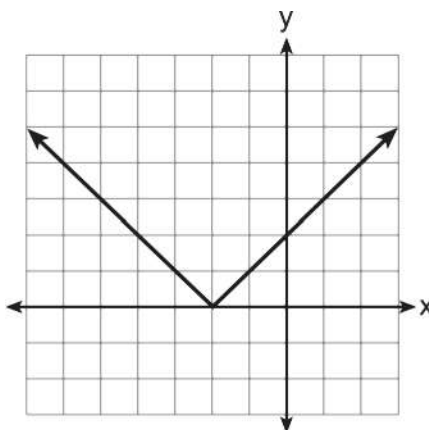
- 42 . An equation whose graph has a slope of -2 and a y -intercept of 3 is

A. $x = -2y + 3$ B. $y = -2x + 3$
C. $x = 3y - 2$ D. $y = 3x - 2$

- 43 . An equation of the line that has a slope of 3 and a y -intercept of -2 is

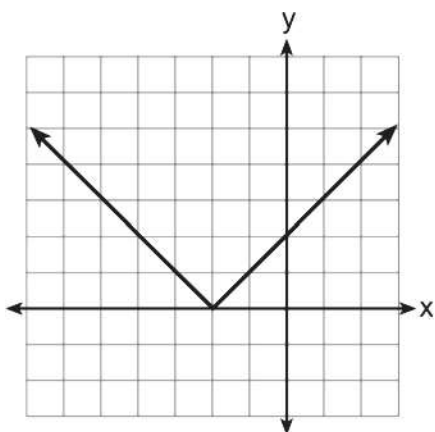
A. $x = 3y - 2$ B. $y = 3x - 2$
C. $y = -\frac{2}{3}x$ D. $y = -2x + 3$

44 . The graph of $y = |x + 2|$ is shown below.

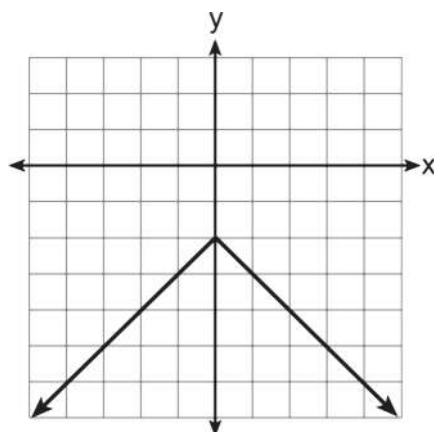


Which graph represents $y = -|x + 2|$?

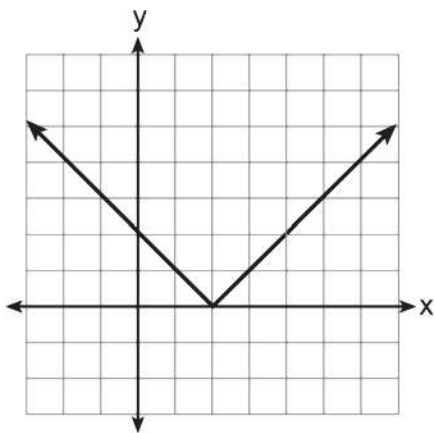
A.



B.



C.



D.

