

SUMMER PACKET FOR INCOMING 8TH GRADE PREAP ALGEBRA 1 STUDENTS

Name: _____

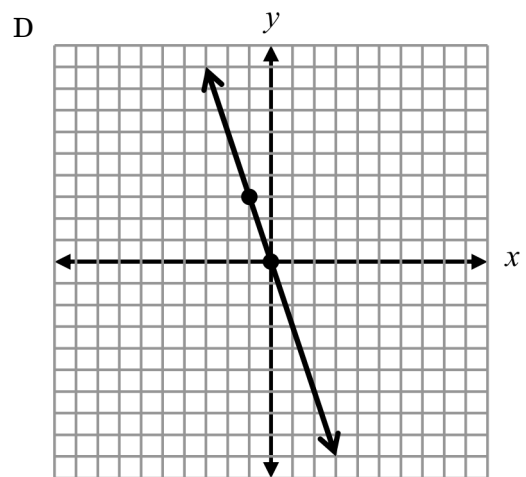
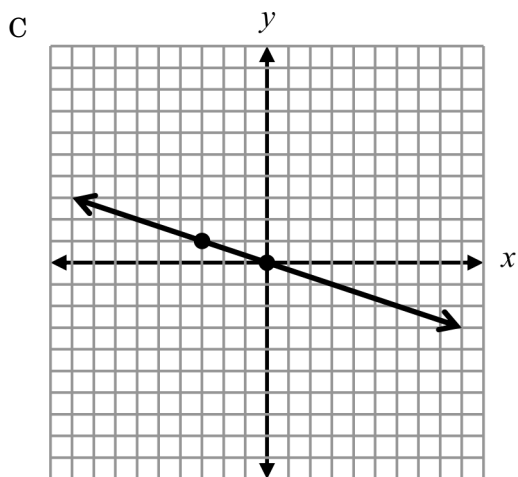
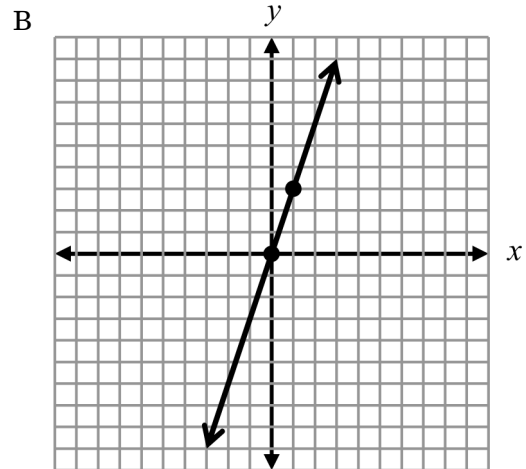
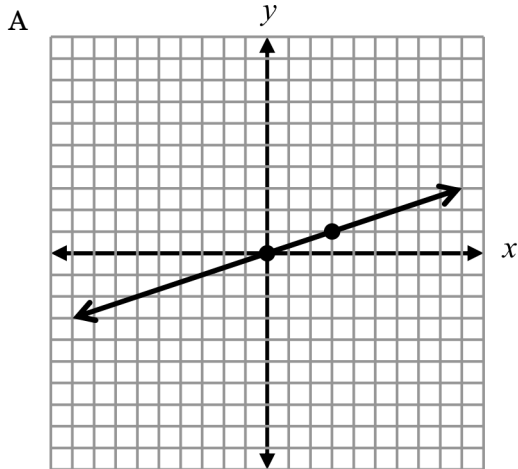
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1. What value for w makes this equation true?

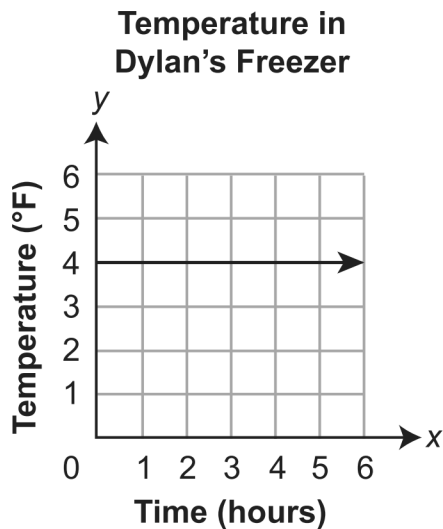
$$5 \times w = (5 \times 20) + (5 \times 3)$$

2. What is the slope of the line whose equation is $y = -x + 2$?

3. Which of these lines has a slope of -3 ?



4. The temperature in Dylan's freezer, in degrees Fahrenheit ($^{\circ}\text{F}$), over several hours in an afternoon is shown in the graph below.



Which equation can be used to determine the temperature, in degrees Fahrenheit, of Dylan's freezer?

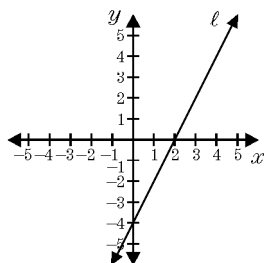
- A $x = 4$ B $y = 4$
C $x = y + 4$ D $y = x + 4$
5. What is the value of x in the equation $2(x - 4) = 4(2x + 1)$?

6. Solve the following equation for x .

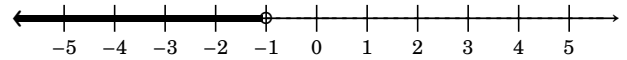
$$0.5(x - 8) = 0.2x + 11$$

7. Which is an equation for line ℓ in the accompanying diagram?

- A $y = 2x + 2$
B $y = 2x - 4$
C $y = -2x - 4$
D $y = -2x + 2$



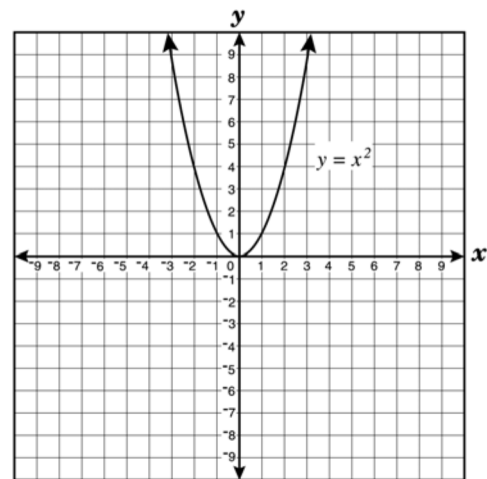
8. Which inequality is represented by the graph?



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

9. Solve for x : $2.5x + 0.5 = 6.25$

10. The following is the graph of the equation $y = x^2$, in which y is a function of x .



Which of these describes the *range* of the function?

- A x is all real numbers
B y is all real numbers
C $y \geq 0$
D $x \geq 0$
11. What is the slope of a line that passes through the points $(-2, -7)$ and $(-6, -2)$?

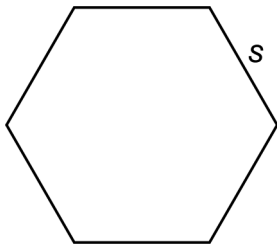
12. Look at the completed function table below.

x	y
-8	-6
-6	-3
-4	0
-2	3

Which set of characteristics describes the graph of the line made by using the values in the function table?

- A A slope of $-\frac{3}{2}$ and a y -intercept of -4
 B A slope of $-\frac{3}{2}$ and a y -intercept of 6
 C A slope of $\frac{3}{2}$ and a y -intercept of -4
 D A slope of $\frac{3}{2}$ and a y -intercept of 6

13. Use the figure below to answer the following question(s).

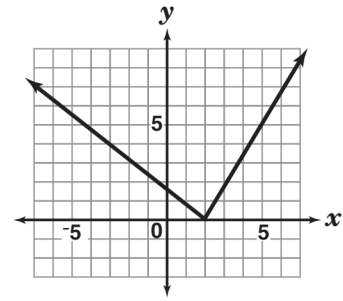


All of the sides of this hexagon have the same length, s . Which expression represents the perimeter of this hexagon?

- A $s + 6$ B $s \times 6$ C $s \div 6$ D s^6

14. If $x = 0.6$ and $y = 5$, the value of $2(xy)^3$ is

15. Look at the function that is graphed below.



Which of these describes the range of this function?

- A $y \geq 0$ B $0 \leq y \leq 5$
 C all real numbers D all whole numbers

16. Solve for $4(3x - 5) = 5(2x + 4)$

17. Solve for x : $5x + 7 = 2x - 2$

18. Which table represents y as a function of x ?

A

x	-2	-1	0	-1	3
y	2	3	4	6	7

B

x	0	1	2	3	5
y	4	6	4	6	8

C

x	0	1	0	-1	3
y	2	4	6	8	8

D

x	-4	-2	0	-2	3
y	-6	-4	0	4	9

19. What is the x -intercept of the line defined by $-2x + 3y = 12$?

20. Solve the following equation for x .

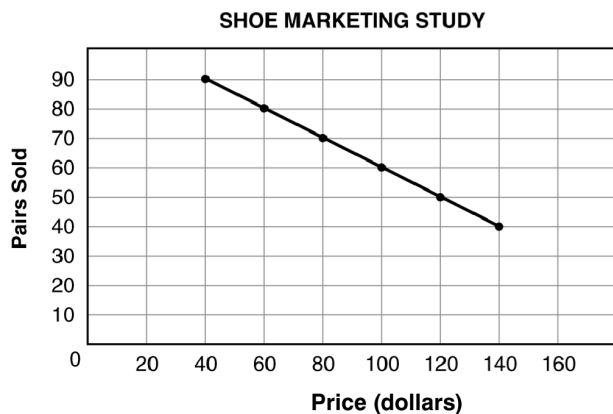
$$3x - (2x - 3) = 2x + 9$$

21. An isosceles triangle has two sides with length x .

The third side is $\frac{1}{2}$ of x . What is the perimeter?

22. Solve $\frac{5}{4}x + \frac{1}{2} = 2x - \frac{1}{2}$ for x . Show your work.

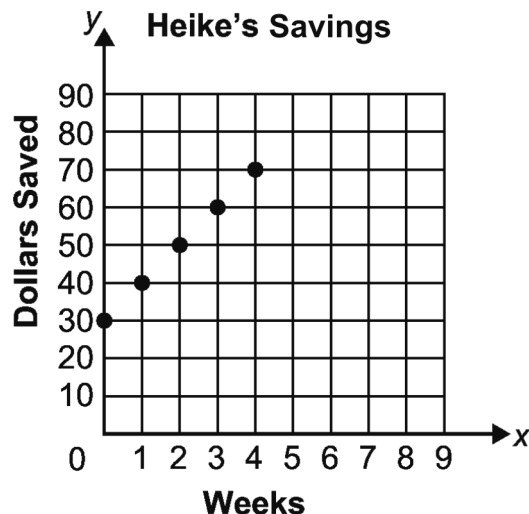
23. A marketing company conducted a study to determine the price of a new basketball shoe. The graph below shows the relationship between the price of the shoe and the number of pairs sold.



Which of the following equations could be used to describe the relationship between the price (p) of the shoe and the number (n) of pairs sold?

- A $n = \frac{1}{2}p + 110$ B $n = -\frac{1}{2}p + 110$
 C $n = \frac{1}{2}p - 110$ D $n = -\frac{1}{2}p - 110$

24. Heike is saving money to purchase a surfboard that costs \$250. She began with \$30 and saved an additional \$10 every week, as shown on the graph below.



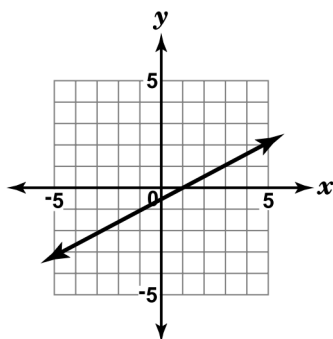
If Heike continues to save at the same rate, on which week will she have saved enough money to purchase the surfboard?

25. The table below shows a linear relationship between x and y .

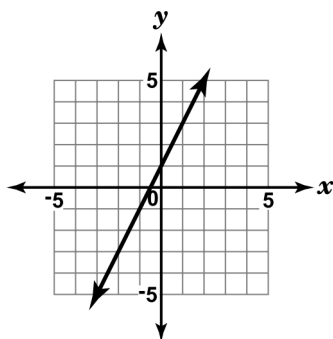
x	-2	-1	0	1	2
y	5	3	1	-1	-3

Which of these graphs shows this relationship?

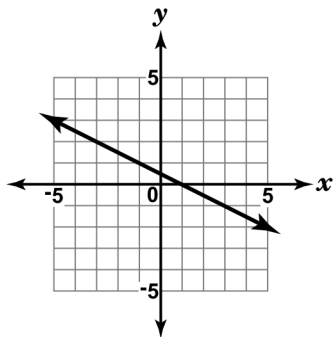
A



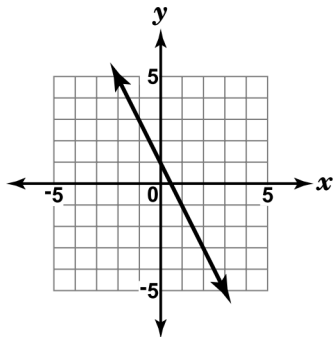
B



C



D



26. Trey's grandparents gave him \$25 to rent video games. He rented 1 game each week. The table below shows the money Trey had left after each rental.

Video Game Rentals

Week	Money Remaining
1	\$22
2	\$19
3	\$16
4	?

The pattern continues. How much money did Trey have at the end of week 4?

27. Clara examines the following function.

x	y
1	4
2	11
3	18
4	25
5	32

What is the correct description of the function that gives these results for y ?

28. Torvald uses an equation to produce the following table of ordered pairs:

x	y
-2	-7
0	-3
2	1
4	5

Which equation describes this list?

- A $y = -3x$ B $y = x + 4$
 C $y = 2x - 3$ D $y = 2x^2$

29. The line whose equation is $y = 4x + 2$ has a y -intercept whose coordinates are

30. What is the slope of the line $y = 3x - 5$?

31. Jamie is selling cookies. She made a chart to show the cost of the cookies based on the number of boxes purchased.

Cookie Costs

Number of Boxes	1	3	5	7	9
Cost	\$4.50	\$7.50	\$10.50	\$13.50	\$16.50

What is the cost for **12 boxes** of cookies?

32. Solve for x : $0.6x + 1.5 = 3.9$

33. Solve for x : $1.2x + 0.3 = 7.5$

34. Which phrase describes characteristics for the graph of the line connecting the points in this table?

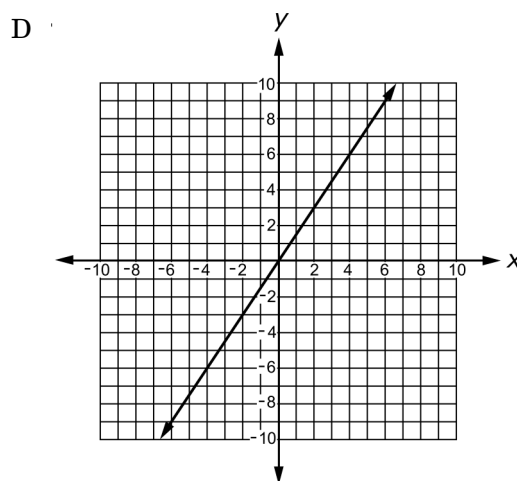
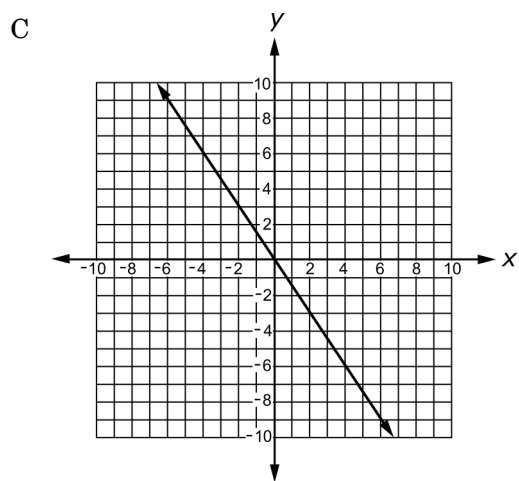
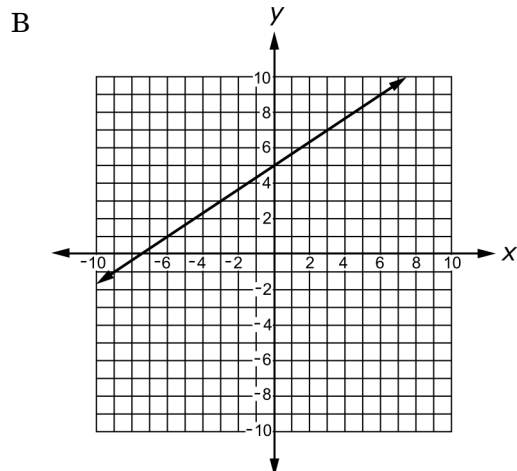
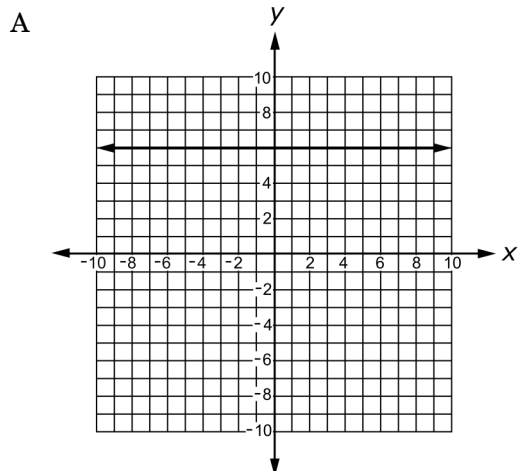
x	y
0	2
5	0

- A A line with a negative slope that crosses the x -axis at 5
- B A line with a negative slope that crosses the y -axis at 5
- C A line with a positive slope that crosses the x -axis at 5
- D A line with a positive slope that crosses the y -axis at 5

35. What is the value of x that makes the linear equation below true?

$$3x - 5 = 2(x + 3)$$

36. A line includes the points $(0, 0)$ and $(4, 6)$. Which graph shows the line?

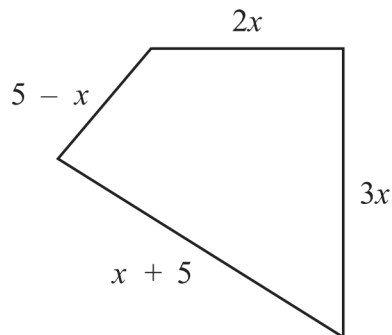


37. Solve for x : $8x - 5(x - 1) = 20$

38. What is the value of x in the equation $13x - 2(x + 4) = 8x + 1$?

39. Determine the slope m , x -intercept, and y -intercept of the equation $5x - 2y = 10$.

40. A polygon and expressions representing its dimensions, in meters, are shown below.



Which of the following represents the perimeter, in meters, of the polygon?

- A $5x$ B 15 C $5x + 10$ D $7x + 10$

41. Carol plans to sell twice as many magazine subscriptions as Jennifer. If Carol and Jennifer need to sell at least 90 subscriptions in all, which inequality could be used to determine how many subscriptions, x , Jennifer needs to sell?

A $x \geq 45$ B $2x \geq 90$
 C $2x - x \geq 90$ D $2x + x \geq 90$

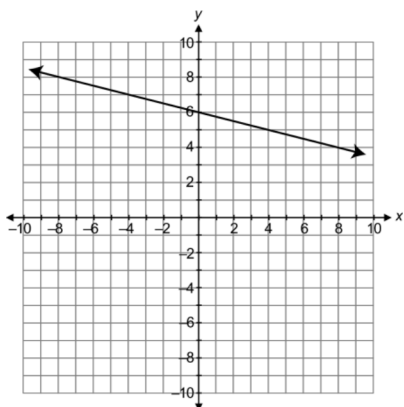
42. Find the sum:
 $(9m - 5n + 2) + (-4m - n - 1) + (-5m + 6n - 1)$

43. What is the solution to the equation below?

$$3(x - 4) = 5x - 6$$

44. Which equation represents a line with a slope of -2 ?

45. The graph of a line is shown on the coordinate grid below.

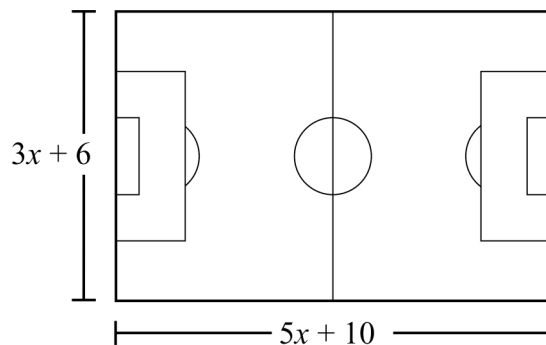


Which of the following *best* represents the slope of the line?

46. What is the value of x in the equation
 $\frac{3}{4}x + 2 = \frac{5}{4}x - 6$?

47. Solve: $-x + 7 - 6x = 19 - 7x$

48. A rectangular soccer field and expressions representing its dimensions, in yards, are shown in the diagram below.



Which of the following expressions represents the perimeter, in yards, of the soccer field?

A $48x$ B $48x^4$
 C $16x + 32$ D $16x^4 + 32$

49. Which table shows a decreasing linear relationship?

A

x	y
4	5
7	7
10	9
13	11

B

x	y
4	56
5	56
6	56
7	56

C

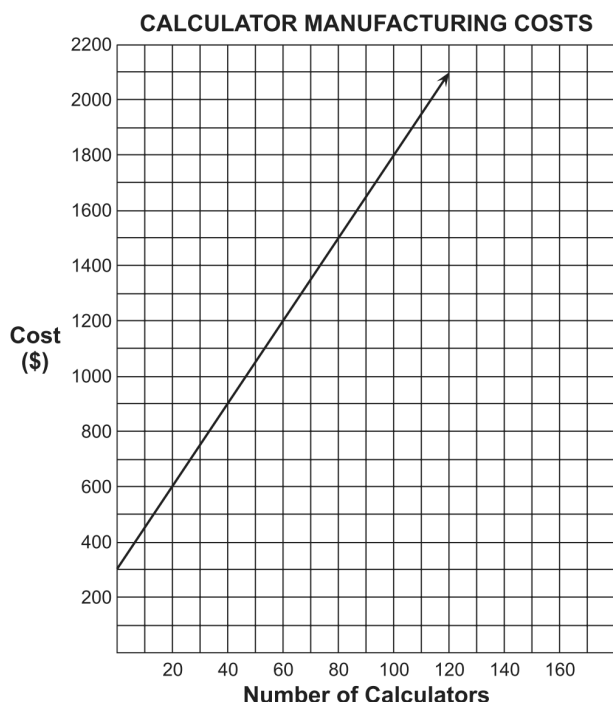
x	y
4	124
8	267
12	407
16	551

D

x	y
14	58
24	47
34	36
44	25

50. A store advertises that during its Labor Day sale \$15 will be deducted from every purchase over \$100. In addition, after the deduction is taken, the store offers an early-bird discount of 20% to any person who makes a purchase before 10 am. If Hakeem makes a purchase of x dollars, $x > 100$, at 8 am, what, in terms of x , is the cost of Hakeem's purchase?

51. The graph below models the cost of manufacturing calculators.



Which equation shows the relationship between the number of calculators, n , and the total cost, C ?

- A $C = 300 + 12.5n$ B $C = 300 + 0.08n$
 C $C = 300 + n$ D $C = 300 + 15n$

52. What is the slope of the line represented by the table of values below?

x	y
0	-20
1	-10
2	0
3	10

53. Which binomial is equivalent to $3(x - 1) - 2(x - 3)$?

- A $x - 7$ B $5x - 7$ C $x + 5$ D $x + 3$

54. Which relation is a function?

- A $\{(-1, 3), (-2, 6), (0, 0), (-2, -2)\}$
 B $\{(-2, -2), (0, 0), (1, 1), (2, 2)\}$
 C $\{(4, 0), (4, 1), (4, 2), (4, 3)\}$
 D $\{(7, 4), (8, 8), (10, 8), (10, 10)\}$

55. What is the slope of the line passing through the points $(1, 3)$ and $(5, 0)$?

56. The equation below is used to find (x, y) coordinates.

$$y = 3x + 2$$

Which coordinates could be found using the equation above?

A

x	y
1	3
2	6
3	9

B

x	y
3	1
6	2
9	3

C

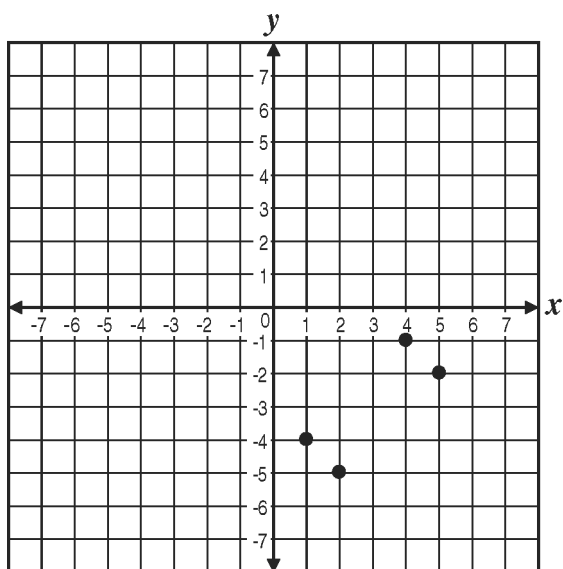
x	y
1	5
2	8
3	11

D

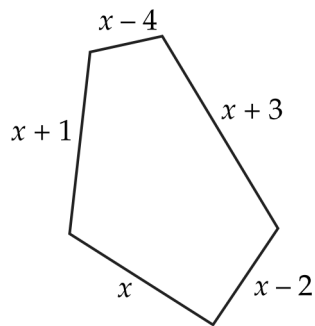
x	y
5	1
8	2
11	3

57. What is the slope of the line containing points $A(4, -1)$ and $B(0, 2)$?

58. What is the domain of the function shown on the graph below?



59. A drawing of the swimming pool at Buckwood Camp is shown below.

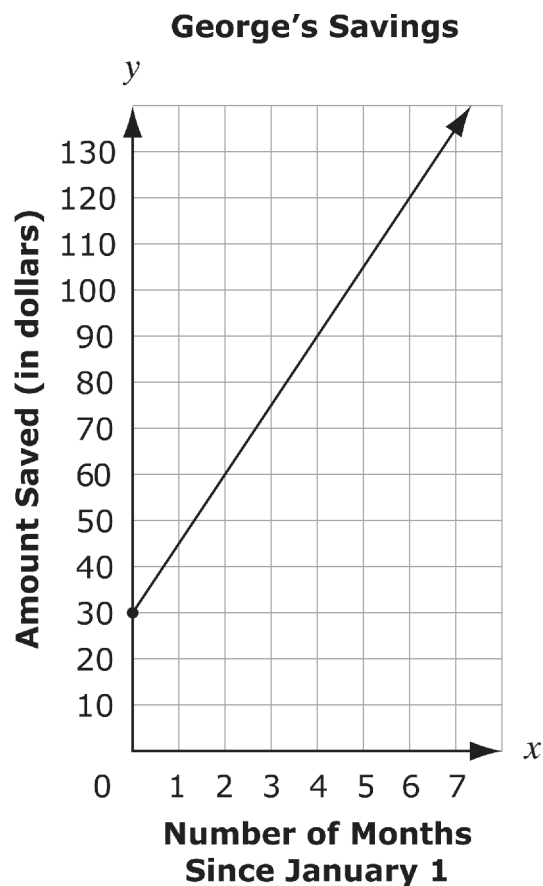


Which of these expressions represents the perimeter of the pool?

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

60. Simplify by combining like terms:
 $(5a + 3b) + 2(a - 3b)$

61.



The graph models the amount of money George has saved. Which equation models the same relationship?

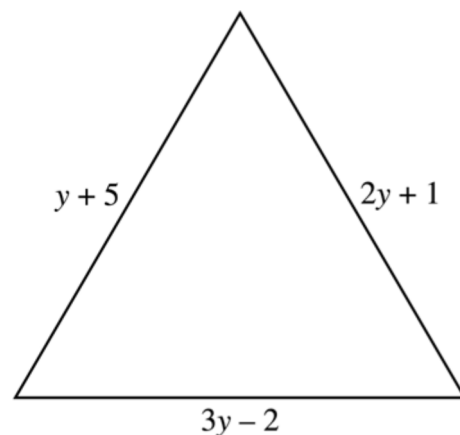
- A $y = \frac{3}{2}x + 30$ B $y = 15x + 30$
 C $y = 30x + \frac{3}{2}$ D $y = 30x + 15$

62. Solve for x : $2x - 5 = 4x + 7$

63. Solve:

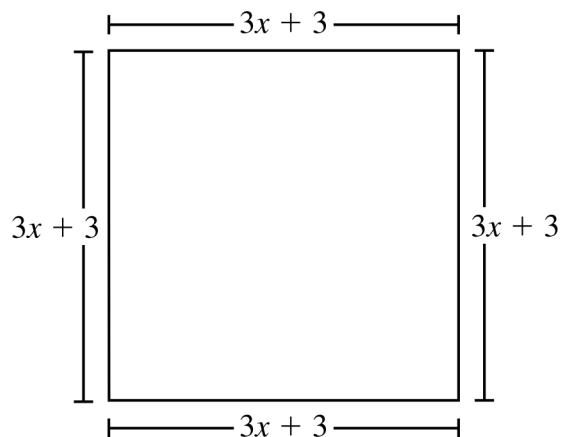
$$\frac{3+x}{7} = \frac{x-9}{4}$$

64. Which of the following could be used to determine P , the perimeter of the triangle shown below?



- A $P = 6y + 4$ B $P = 5y - 4$
 C $P = 6y - 4$ D $P = 5y + 4$

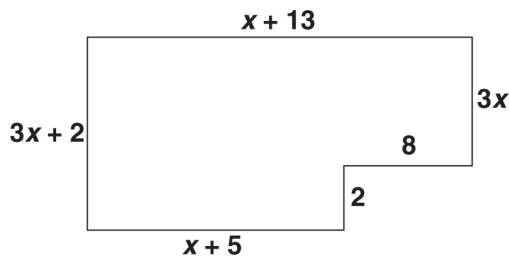
65. A square and its dimensions are shown below.



What is the perimeter of the square?

66. Solve for x : $21 = 3(x + 2)$

67. What is the perimeter of the figure shown below, which is not drawn to scale?

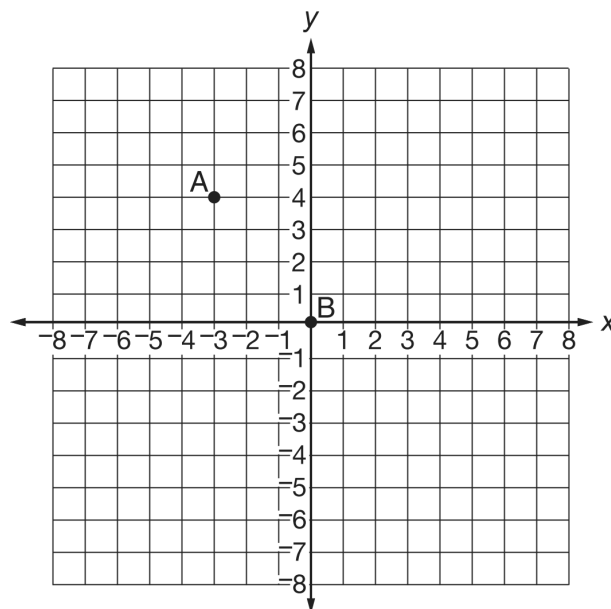


- A $5x + 33$ B $5x^3 + 33$
C $8x + 30$ D $8x^4 + 30$

68. Solve for x : $5x - 2(x + 1) = 10$.

69. John's father weighs 20 pounds more than twice what John weighs. If John's weight is represented by y , then his father's weight may be represented by

70. Use the graph below to answer the question.



Which equation represents a line that passes through points A and B plotted on the graph?

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

71. What is the slope of the line whose equation is $y = 2x - 10$?

72. A correct translation of "six less than twice the value of x " is

- A $2x < 6$ B $2x - 6$ C $6 < 2x$ D $6 - 2x$

73. What is the sum of $5x - 6y + z$ and $5x - 6y - z$?

74. If $a = \frac{b^2 - c}{2}$, find the value of a when $b = 2$ and $c = -4$.

75. What is the value of the expression $2x^2 - 5x + 6$ when $x = -2$?

76. Look at the table of values.

x	y
-1	-4
0	-1
1	2
2	5
3	8

Which equation represents the relationship between x and y ?

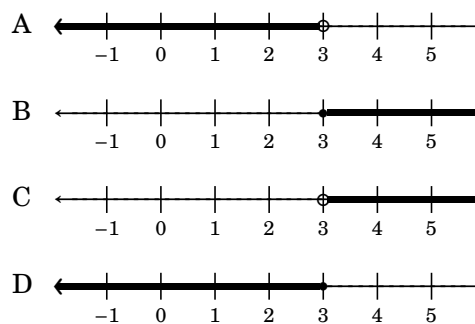
77. For what value of x will $3x + 4 = x - 6$ be a true statement?

78. What is the y -intercept of the graph of the line whose equation is $y = 3x - \frac{2}{3}$?

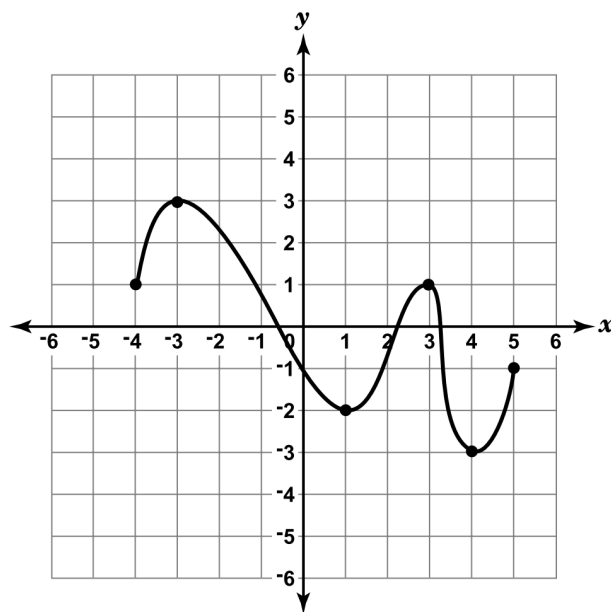
79. Which is the equation of the same line as $y = 3x - 8$?

- A $3x - 2y = 8$ B $-3x - 2y = -8$
 C $6x - y = 16$ D $6x - 2y = 16$

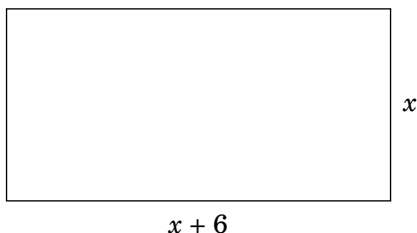
80. Which graph represent the solution of the inequality $2x + 3 > 9$?



81. Look at the function that is graphed below.



What is the range of this function?



82.

$x + 6$

The length of the rectangle above is 6 units longer than the width. Which expression could be used to represent the area of the rectangle?

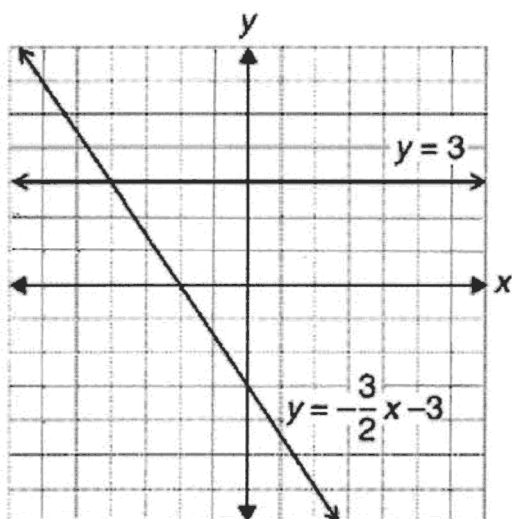
A $x^2 + 6x$

B $x^2 - 36$

C $x^2 + 6x + 6$

D $x^2 + 12x + 36$

83. Which point best represents the solution to the system of linear equations shown in the graph below?



84. What is the value of n in the equation $0.6(n + 10) = 3.6$?

85. Which of the following tables does *not* represent a function?

A

x	y
-3	5
-2	5
-1	5
0	5

B

x	y
-1	-1
0	0
1	1
2	2

C

x	y
3	0
4	1
5	2
5	3

D

x	y
2	8
3	6
6	4
8	2

86. What are the y-intercept and the slope of the graph of the following equation?

$$3x + 4y = 12$$

87. Which of these is the linear equation $y = \frac{1}{2}x - 4$ expressed in *standard* form?

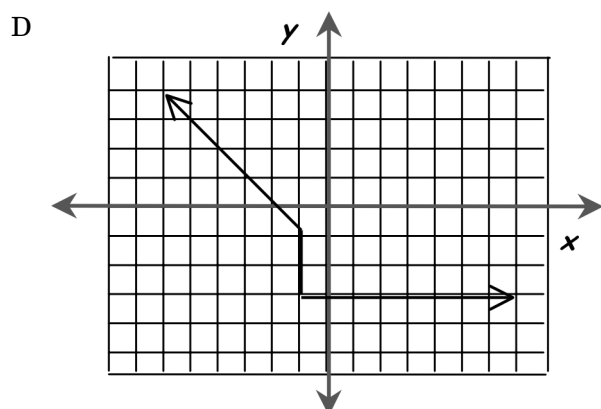
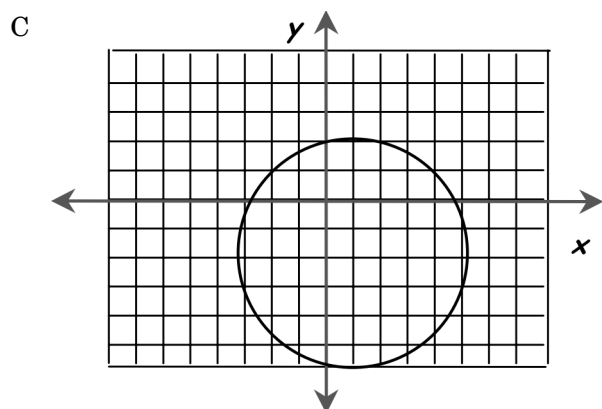
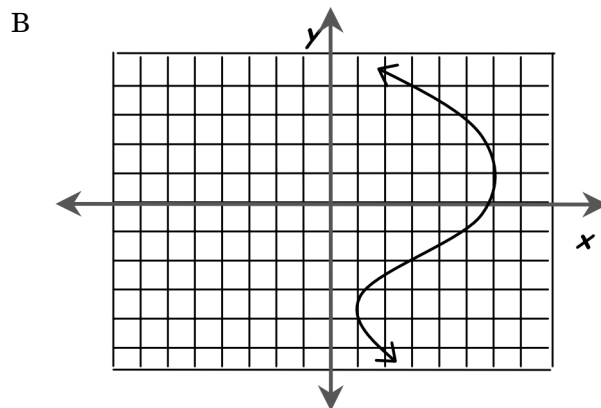
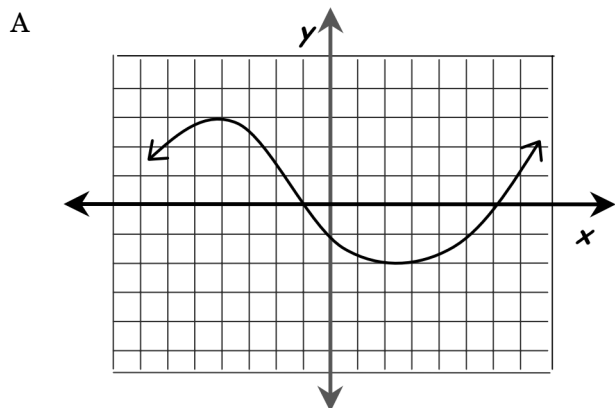
A $x - 2y = 8$

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

C $y + 4 = \frac{1}{2}x$

D $x + 2y = 8$

88. Which graph below represents a function?



89. Which table represents y as a function of x ?

A

x	1	2	3	2	1
y	1	2	3	4	5

B

x	4	5	4	3	2
y	-6	-5	-4	-3	-2

C

x	8	7	6	5	4
y	-1	2	-1	2	-1

D

x	3	4	3	2	3
y	0	1	2	1	3

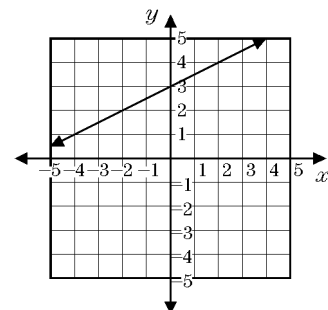
90. Which equation represents line ℓ , shown in the accompanying diagram?

A $y = 2x + 3$

B $y = \frac{1}{2}x + 3$

C $y = 3x + \frac{1}{2}$

D $y = 3x + 2$

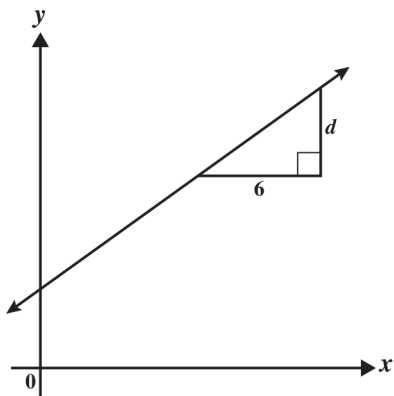


91. Rhonda has \$1.35 in nickels and dimes in her pocket. If she has six more dimes than nickels, which equation can be used to determine x , the number of nickels she has?

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

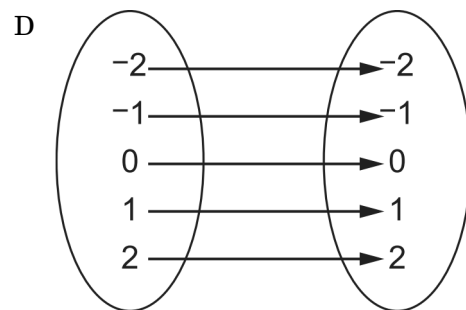
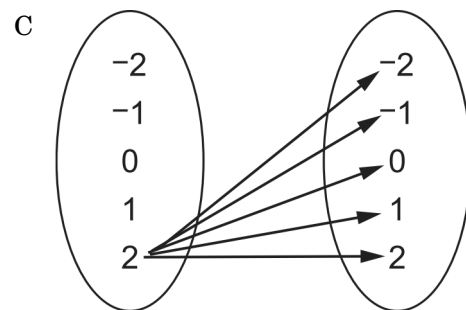
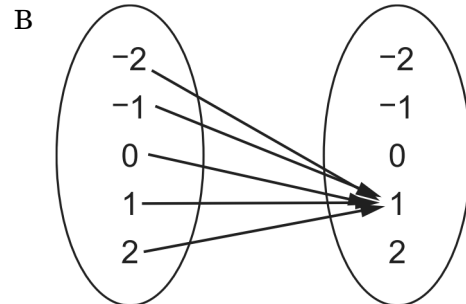
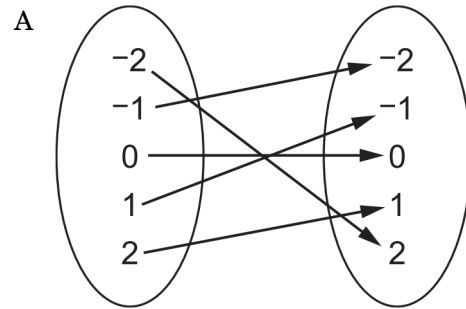
93. What is the slope of the line that passes through the points $(5, -1)$ and $(-3, 3)$?

94. The slope of the line shown below is $\frac{2}{3}$.

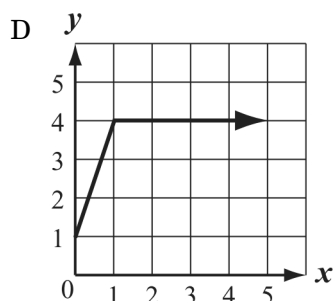
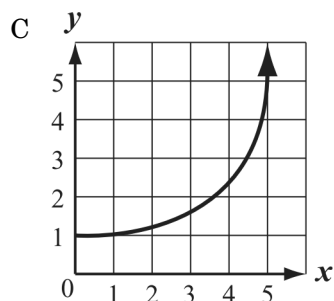
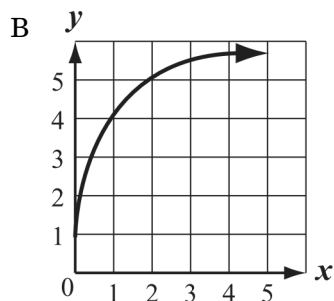
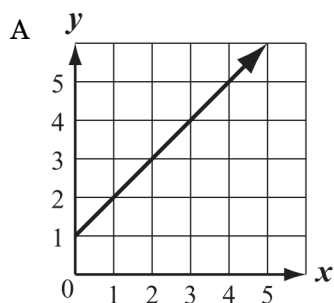


What is the value of d ?

95. Which model is *not* a function?



96. Which of the following graphs shows a constant rate of change between the variables x and y ?



97. Which of the following is a correct procedure for solving the equation below?

$$2(x - 6) - 12 = -3(x + 5)$$

A

$$\begin{aligned} 2(x - 6) - 12 &= -3(x + 5) \\ 2x - 6 - 12 &= -3x + 5 \\ 2x - 18 &= -3x + 5 \\ 5x - 18 &= 5 \\ 5x &= 23 \\ x &= \frac{23}{5} \end{aligned}$$

B

$$\begin{aligned} 2(x - 6) - 12 &= -3(x + 5) \\ 2x - 12 - 12 &= -3x + 15 \\ 2x &= -3x + 15 \\ 5x &= 15 \\ x &= 3 \end{aligned}$$

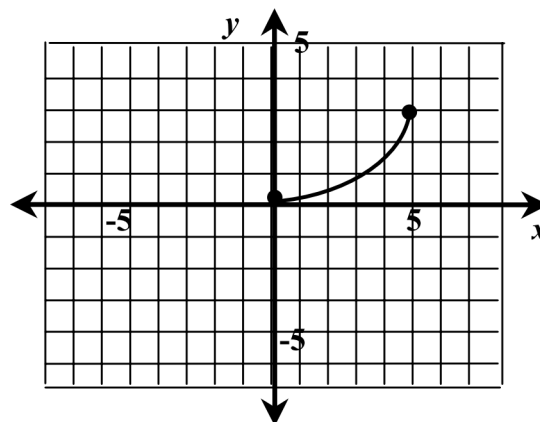
C

$$\begin{aligned} 2(x - 6) - 12 &= -3(x + 5) \\ 2x - 12 - 12 &= -3x - 15 \\ 2x - 24 &= -3x - 15 \\ 5x - 24 &= -15 \\ 5x &= -39 \\ x &= \frac{39}{5} \end{aligned}$$

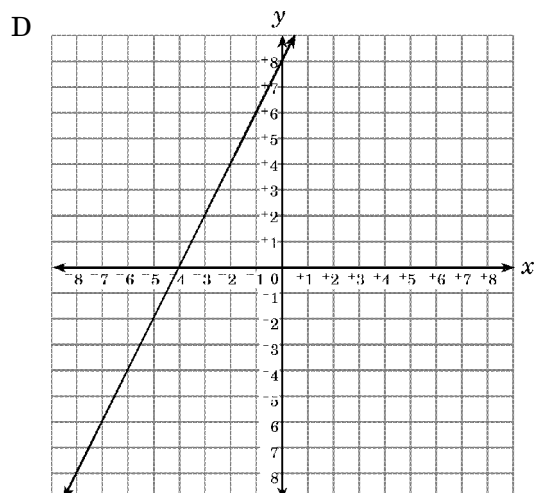
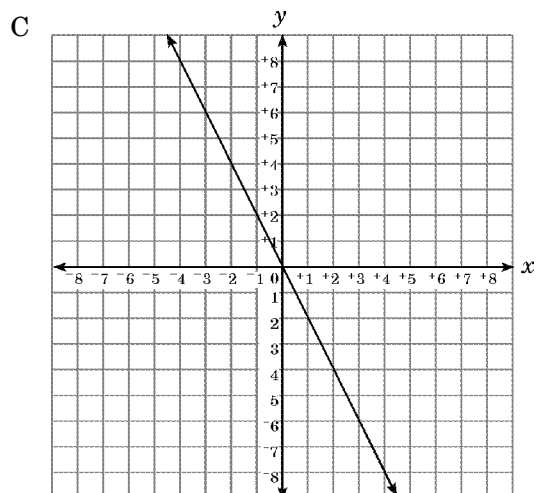
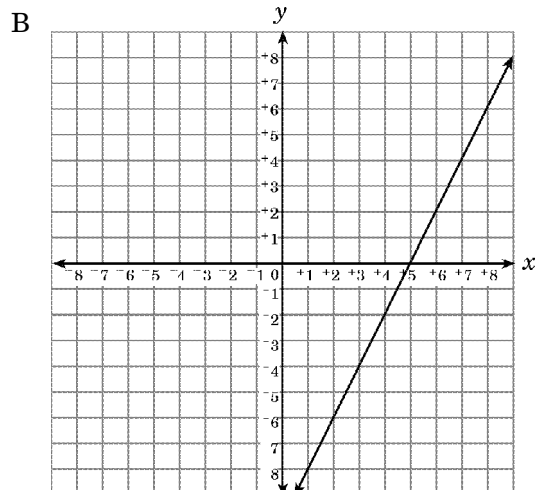
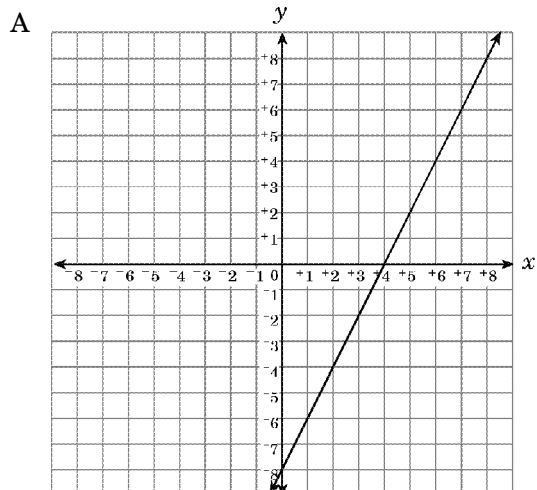
D

$$\begin{aligned} 2(x - 6) - 12 &= -3(x + 5) \\ 2x - 12 - 12 &= -3x - 15 \\ 2x - 24 &= -3x - 15 \\ 5x - 24 &= -15 \\ 5x &= 9 \\ x &= \frac{9}{5} \end{aligned}$$

98. What is the domain of the relation below?

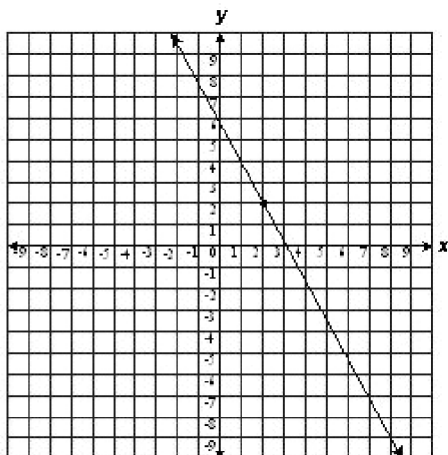


99. Which line has a slope of 2 and passes through $(-1, -12)$?

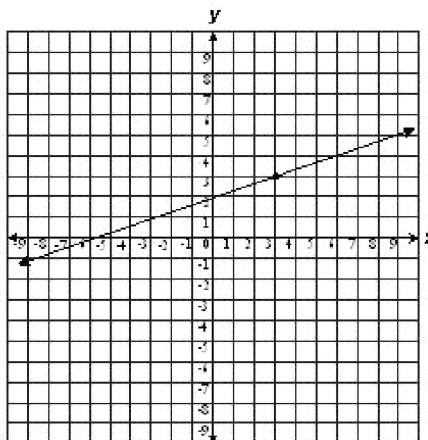


100. Which graph best represents the line containing the point $(2, 2)$ and having a slope of 3?

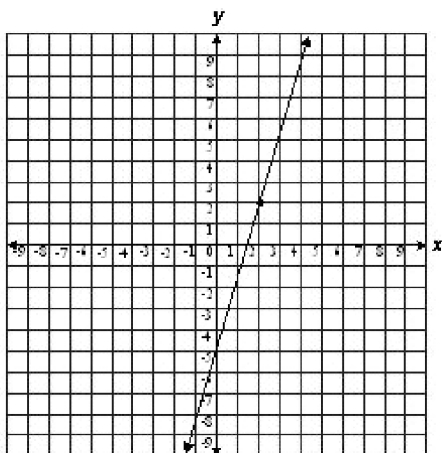
A



B



C



D

