Name _____

Date _____

This test contains 30 multiple-choice questions. Work each problem in the space on this page. Select the best answer. Write the letter of the answer on the blank at the right.

1 Carla earns $9 per hour working at a clothing store. She is writing a function to show the relationship between her hours worked h, and her wages earned w. In Carla's function, what does the independent variable represent? **1** _____

A the number of hours worked
B the wage earned in one hour
C the total wages earned
D the amount of time Carla must work to earn $1

2 Which statement describes each ordered pair (x, y) in the table? **2** _____

x	0	2	4	6
y	−2	2	14	34

F y is 2 less than x.
G y is equal to x.
H y is 2 less than twice x.
J y is 2 less than the square of x.

3 Which function describes the data in the table? **3** _____

x	0	1	2	3
y	3	5	7	9

A $y = x + 3$
B $y = 2x + 3$
C $y = 3x$
D $y = 3x - 1$

4 What is the domain of the function $f(x) = \frac{3}{x+2}$? **4** _____

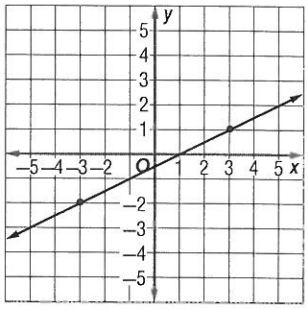
F the set of all real numbers
G the set of all real numbers except $x = -2$
H the set of all real numbers except $x = 0$
J the set of all real numbers except $x = 2$

5 The table below defines a linear function. What is the slope of the line? **5** _____

x	y
4	7
2	3
0	−1
−2	−5
−4	−9

A $\frac{1}{2}$ **B** 2 **C** $\frac{7}{4}$ **D** $\frac{11}{5}$

6 Which statement is NOT true for the graph below? **6** _____



F The x-intercept is 1.

G The y-intercept is $-\frac{1}{2}$.

H The slope is $\frac{1}{2}$.

J The line contains the origin.

7 A student graphed the line $y = 3x + 2$ plotting and connecting points A, B, and C. How can the student use points A, B, and C to find the graph of $y = 3x - 5$? **7** _____

A Move each point down 5 units.

B Move each point down 7 units.

C Move each point left 3 units.

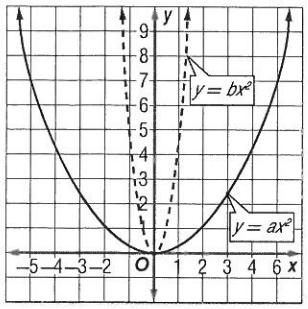
D Move each point right 7 units.

8 What is the range of the function $f(x) = 3x^2 - 7$? **8** _____

F $y \geq 7$ **G** $y \leq 7$ **H** $y \geq -7$ **J** $y \leq -7$

9 The graph of $y = ax^2$ and $y = bx^2$ are shown below. Which statement describes the relationship between a and b?

9 _____



A $a = b$

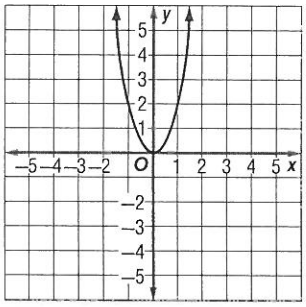
B $a > b$

C $a < b$

D There is not enough information to determine the relationship.

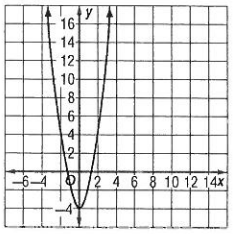
10 The graph of $y = 2x^2$ is shown below.

10 _____

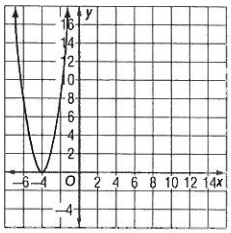


Which of the following shows the graph of $y = 2x^2 - 4$?

F



H



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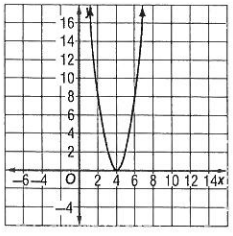

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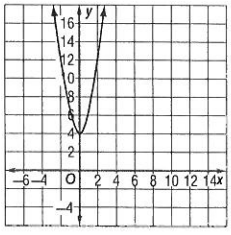


11 The health club charges a $75 membership fee plus a $40 monthly fee. Wesley has $300 to spend on a health club membership. Which inequality can be used to find m, the number of months for which Wesley can afford to be a member of the health club?

11 _____

A $300 \geq 75 + 40m$
B $300 \leq 75m + 40$
C $300 \leq 75 + 40m$
D $300 \geq 75m + 40$

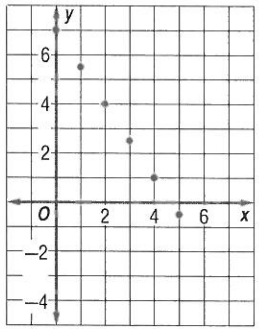
12 The number of cars sold in May m was 60 less than four times the number of cars sold in April a. Which equation shows the relationship between m and a?

12 _____

F $m = a - 60$
G $m = 60 - 4a$
H $m = a^4 - 60$
J $m = 4a - 60$

13 The graph below shows several ordered pairs for a linear function.

13 _____



Which is the best prediction of the value of y when x is 7?

A -1.5 **B** -2 **C** -2.5 **D** -3.5

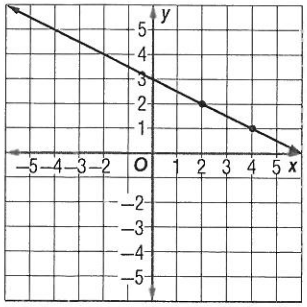
14 Solve for x.
$12 - 14x = -72$

14 _____

F -36
G -6
H 36
J 6

15 The graph shows part of the line $y = -\frac{1}{2}x + b$. What is the value of b?

15 _____

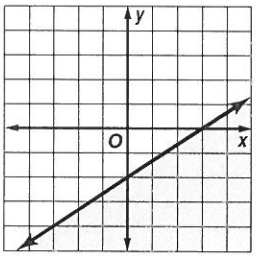


A $-\frac{1}{2}$ **B** 2 **C** 3 **D** 6

16 In which graph does the shaded area show the solutions to the inequality $3x - 2y \leq -6$?

16 _____

F



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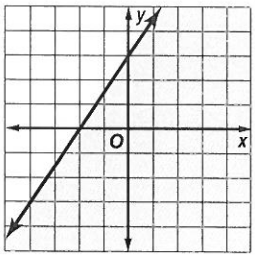

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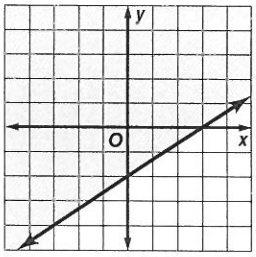

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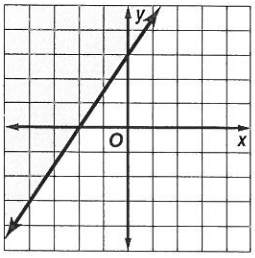


17 Which is NOT a reasonable solution to the inequality $2x \geq x$?

17 _____

A $x = -1$ **B** $x = 0$ **C** $x = 1$ **D** $x = 2$

18 Molly has \$5.20 in dimes and quarters. The number of dimes is 3 more than the number of quarters. Which system of linear equations can be used to find d, the number of dimes, and q, the number of quarters?

18 _____

F $3q + d = 5.20$
$q + d = 0.35$

G $d = 3 + q$
$0.10d + 0.25q = 5.20$

H $(q + 3) + q = 5.20$
$q + d = 0.35$

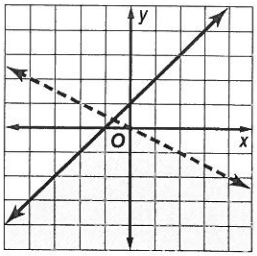
J $q = 3 + d$
$0.10d + 0.25q = 5.20$

19 Which shows the solution set of the following system of inequalities?

19 _____

$$x - y \leq -1$$
$$x + 2y < 0$$

A



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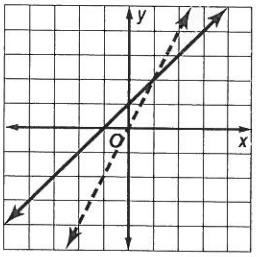

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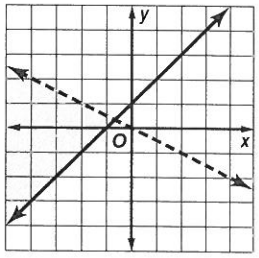

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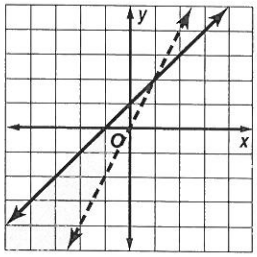


20 What are the solutions to the equation $2x^2 + 9x = 5$?

20 _____

F $x = -1, x = \frac{5}{2}$

G $x = 1, x = -\frac{5}{2}$

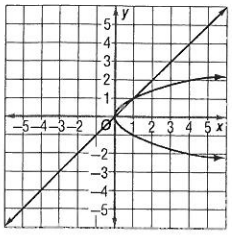
H $x = 5, x = -\frac{1}{2}$

J $x = -5, x = \frac{1}{2}$

21 Which of these shows the graphs of $y = x$ and $y = x^2$?

21 _____

A



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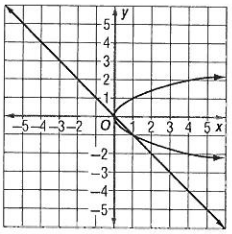

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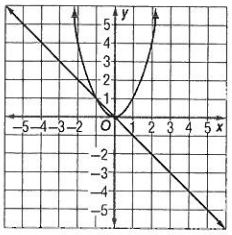

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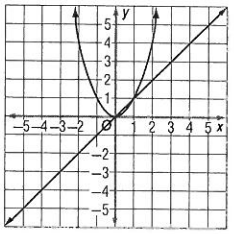
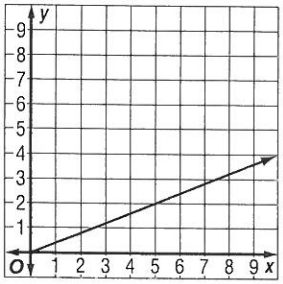


22 Which relationship is best shown by the graph?

22 _____



F Oranges cost \$0.50 per pound.

G A tree grows 2 inches every 5 months.

H The temperature of a cooler decreases 4 degrees every 10 minutes that it is open.

J A pool's water level increases at 5 gallons per minute.

23 Which algebraic expression represents the phrase "6 less than the sum of x and the square of x?"

23 _____

A $x + x^2 - 6$

C $6 - x + x^2$

B $x + \sqrt{x} - 6$

D $6 - (x + x^2)$

24 Which expression is equivalent to $-3(8 - 10)$?

24 _____

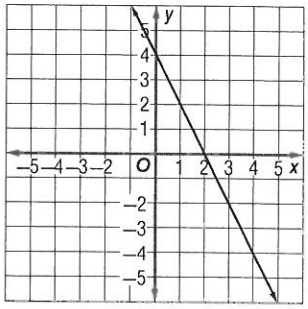
F $-24 - 30$

H $-24 + 30$

G $-24 - 10$

J $24 - 30$

25 What is the equation of the line shown? **25** _____



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

26 Which is an equation of the line that has a slope of $-\frac{1}{3}$ and passes through the point $(-5, 2)$? **26** _____

F $x - 3y = -11$
G $x - 3y = 11$
H $x + 3y = 1$
J $x + 3y = 21$

27 The weight of an object on the moon varies directly as its weight on earth. The constant of variation is 6. Which equation describes this relationship? **27** _____

A $y = 6x$
B $y = x + 6$
C $xy = 6$
D $x + y = 6$

28 Adam bought CDs for \$18 each and T-shirts for \$11 each. Altogether, he spent \$105. Which equation best represents Adam's purchase? **28** _____

F $4c + 3t = 105$
G $18c + 11t = 105$
H $29ct = 105$
J $(18 + 11)(c + t) = 105$

29 Simplify $\frac{\sqrt{a} \cdot b^2}{a^{\frac{3}{2}} b^5}$. **29** _____

A $a^{\frac{1}{3}} b^{\frac{2}{5}}$
B $a^{\frac{3}{4}} b^{10}$
C $\frac{1}{ab^3}$
D $\frac{1}{a^{\frac{3}{4}} b^3}$

30 Which relationship would most likely have a negative correlation? **30** _____

F the time elapsed, and the number of words typed
G the temperature outside, and the number of people wearing coats
H the number of students in a school, and the number of teachers in the school
J the rate at which a car is driven, and the number of miles driven in one hour