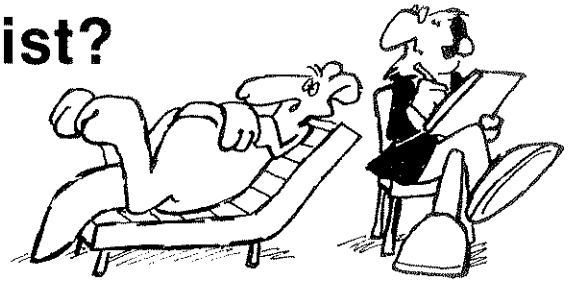
Why Did The Kangaroo See A Psychiatrist?



Find the graph of the solution set of any inequality below in the corresponding column of graphs. Notice the letter next to it. Write this letter in each box that contains the number of that exercise. Keep working and you will discover the answer to the title question.

① $x < 1$ — Ⓗ

② $x \leq 1$ — Ⓨ

③ $x > 1$ — Ⓢ

④ $x \geq 1$ — Ⓘ

⑤ $x \neq 1$ — Ⓓ

⑥ $x < -2$ — Ⓛ

⑦ $x > -2$ — Ⓡ

⑧ $x \leq -2$ — Ⓖ

⑨ $x \geq -2$ — Ⓐ

⑩ $x < -1$ — Ⓞ

⑪ $-1 < x$ — Ⓤ

⑫ $3 \geq x$ — Ⓜ

⑬ $x < 3$ — Ⓕ

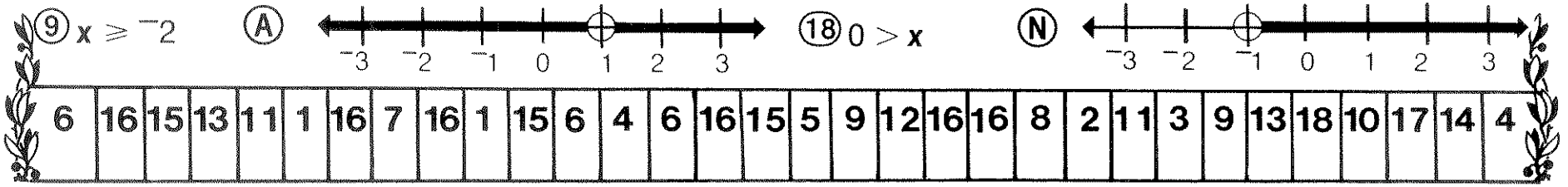
⑭ $x \neq 0$ — Ⓔ

⑮ $0 \leq x$ — Ⓟ

⑯ $0 \geq x$ — Ⓦ

⑰ $0 < x$ — Ⓙ

⑱ $0 > x$ — Ⓝ



Why Was The Photographer Arrested?

Solve any inequality below. CIRCLE the letter next to the correct answer. Write this letter in the box at the bottom of the page that contains the number of that exercise. Keep working and you will discover the answer to the title question.

① $x + 5 > 9$ (E) $x > 4$ (R) $x < 4$	⑥ $^-6x < 12$ (E) $x > {}^-2$ (D) $x < {}^-2$	⑪ $^-5x > {}^-20$ (T) $x > 4$ (E) $x < 4$	⑯ $-\frac{1}{2}n \geq {}^-15$ (I) $n \geq 30$ (U) $n \leq 30$	㉑ $-\frac{2}{3}x > 8$ (D) $x > {}^-12$ (W) $x < {}^-12$
② $3x \leq 15$ (S) $x \geq 5$ (D) $x \leq 5$	⑦ $^-6x < {}^-12$ (L) $x > 2$ (W) $x < 2$	⑫ $x - 10 < {}^-1$ (F) $x > 9$ (P) $x < 9$	⑰ $x + 15 < 4$ (E) $x > {}^-11$ (H) $x < {}^-11$	㉒ $^-2x \leq {}^-42$ (P) $x \geq 21$ (X) $x \leq 21$
③ $u - 1 \geq {}^-4$ (A) $u \geq {}^-3$ (L) $u \leq {}^-3$	⑧ $z + 4 > {}^-3$ (E) $z > {}^-7$ (A) $z < {}^-7$	⑬ $\frac{1}{2}n \geq 15$ (E) $n \geq 30$ (I) $n \leq 30$	⑱ $8x > {}^-56$ (P) $x > {}^-7$ (N) $x < {}^-7$	㉓ $t + 13 \geq 30$ (T) $t \geq 17$ (P) $t \leq 17$
④ $6x < 12$ (V) $x > 2$ (T) $x < 2$	⑨ $m - 12 \leq 2$ (S) $m \geq 14$ (O) $m \leq 14$	⑭ $\frac{1}{2}n \geq {}^-15$ (M) $n \geq {}^-30$ (E) $n \leq {}^-30$	⑲ $d - 7 \leq {}^-16$ (T) $d \geq {}^-9$ (L) $d \leq {}^-9$	㉔ $4a \leq {}^-20$ (F) $a \geq {}^-5$ (B) $a \leq {}^-5$
⑤ $6x < {}^-12$ (B) $x > {}^-2$ (H) $x < {}^-2$	⑩ $^-5x > 20$ (D) $x > {}^-4$ (N) $x < {}^-4$	⑮ $-\frac{1}{2}n \geq 15$ (R) $n \geq {}^-30$ (O) $n \leq {}^-30$	⑳ $\frac{2}{3}x > 8$ (S) $x > 12$ (T) $x < 12$	㉕ $-\frac{1}{8}k > {}^-1$ (P) $k > 8$ (H) $k < 8$

5	13	20	25	9	23	12	6	15	18	7	11	3	10	2	24	19	1	21	4	17	8	14	16	22

Did you hear about...

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O ?

DIRECTIONS:

Solve any inequality below. In the answer column, find the inequality that describes the solution set and notice the word next to it. Write this word in the box that has the same letter as that exercise.

KEEP WORKING AND YOU WILL HEAR ABOUT A COLLEGE EYE DEAL.

Ⓐ $2(3x - 5) > 2x + 6$

Ⓑ $8(2 + x) \leq 3x - 9$

Ⓒ $^{-}3(4x - 6) < 7 - x$

Ⓓ $13x - 7(^{-}2 + x) \geq 4x - 10$

Ⓔ $5(^{-}3x - 1) + 7 \leq {}^{-}x + 30$

Ⓕ $12 + 5x > 2(8x - 6) - 7x$

Ⓖ $9x - 2x \geq 14 - 9(^{-}x - 4)$

Ⓗ $^{-}4(3 - 5x) - 11x < 3x + 6$

Ⓘ $10(x + 2) > {}^{-}2(6 - 9x)$

Ⓙ $7(2 + 2x) \geq 4(^{-}x - 10)$

Ⓚ $11 + 3(^{-}8 + 5x) < 16x - 5$

Ⓛ $^{-}6(7x - 1) < {}^{-}8x + 9(^{-}3x - 4)$

Ⓜ $^{-}9x + 2(4x + 12) \leq 4(1 - 3x) - 13$

Ⓝ $7(^{-}x + 4) + 16 \geq 5x - (10x - 6) - 6$

Ⓞ $12(2x + 3) - 3(8 + 7x) > 0$

$x < 6$—WHO

$x \leq {}^{-}3$—OVER

$x < 4$—HAVE

$x \geq 22$—STUDENTS

$x \leq {}^{-}5$—CROSS

$x \geq {}^{-}12$—COLLEGE

$x \leq {}^{-}2$—EYES

$x > 6$—CONTROL

$x > 4$—THE

$x < 1$—KNOW

$x < 3$—TO

$x \leq 22$—HIS

$x \geq {}^{-}2$—PROFESSOR

$x \leq {}^{-}25$—SEEMED

$x \geq {}^{-}3$—ABSOLUTELY

$x \geq {}^{-}25$—SUBJECT

$x > {}^{-}8$—NO

$x > 1$—EYED

$x < {}^{-}8$—HELP

$x > {}^{-}4$—PUPILS

$x < {}^{-}4$—TEACH

Name Date

Problem solving using inequalities

When solving word problems with inequalities, the following translations may be helpful.

1. $x < a$ (x is less than a.)
2. $x > a$ (x is greater than a.)
3. $x \geq a$ (x is greater than or equal to a, x is at least a, x is not less than a.)
4. $x \leq a$ (x is less than or equal to a, x is at most a, x is not greater than a.)
5. $a < x < b$ (x is between a and b, but b has to be greater than a.)

The Jones rented a boat for the day for $50 a day plus $10 for every hour they have the boat. How long can they have the boat if they want to spend at the most $140?

$50 + 10h \leq 140$ Set up the equation, letting h = the number of hours.

$10h \leq 90$

$h \leq 9$ Therefore, they can have the boat at the most 9 hours that day.

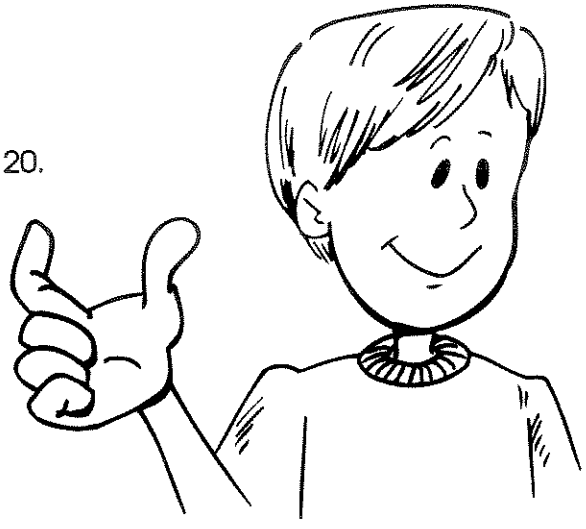
Translate each sentence into an inequality.

1. Six more than 12 times a number is at the most 45.

2. The sum of 4 and a number multiplied by 8 is at least 20.

3. Seven less than 5 times a number is greater than 25.

4. A third of Joe's age is between 18 and 30.



Write an inequality for each problem. Solve.

5. Mike rented a bike for $10 a day plus $.25 a mile. How far can Mike ride his bike if he only wants to spend $25?

6. The sum of two consecutive odd integers is at least 36. Find the integers.

7. Steve makes a $15 profit on each stereo he sells. How many stereos does Steve need to sell to make a profit of at least $300?

8. Bob can lift 75 pounds. If a single brick weighs $2\frac{1}{2}$ pounds at most, how many bricks could Bob lift?

Watch Out!

A *FRIENDLY WARNING* is hidden below. To discover it, find the union or intersection for each pair of sets. Then arrange the elements of each solution set to form a word.

WATCH OUT!

① $\{A, F, I, L\} \cap \{P, I, F\}$ → _____

② $\{N, A\} \cup \{A\}$ → _____

③ $\{B, X, L, R, A\} \cap \{V, P, X, A, M\}$ → _____

④ $A = \{R, S, P, O\}$
$B = \{D, O, S, R\}$ $A \cup B$ → _____

⑤ $X = \{O, B, N\}$
$Y = \{L, N, C, S, O\}$ $X \cap Y$ → _____

⑥ $\{R, O, U, Y\} \cup \{U, R, O\}$ → _____

⑦ $A = \{R, A, Y, K, W, C\}$
$B = \{L, A, C, I, R\}$ $A \cap B$ → _____

⑧ $\{O, U, S, Y\} \cap \{T, U, Y, V, O\}$ → _____

⑨ $X = \{M, T, G, H\}$
$Y = \{G, I, M, T\}$ $X \cup Y$ → _____

⑩ $\{V, H, A, E\} \cup \{A, V\}$ → _____

⑪ $A = \{Q, A, W, N, T\}$
$B = \{B, N, A, J\}$ $A \cap B$ → _____

⑫ $\{L, A, X\} \cap \{X, R, B, A\}$ → _____

⑬ $X = \{E\}$
$Y = \{D, T, E, N\}$ $X \cup Y$ → _____

Why Was The Hit Record Nervous?

Find the UNION of the two given sets in the column of graphs below. Write the letter next to the graph in each box that contains the number of the exercise. Keep working and you will discover the answer to the title question.

① $A = \{x \mid x > 2\}$
$B = \{x \mid x < -1\}$

② $X = \{x \mid x \geq 2\}$
$Y = \{x \mid x \leq -1\}$

③ $A = \{x \mid x \geq 0\}$
$B = \{x \mid x < -3\}$

④ $X = \{x \mid x > 0\}$
$Y = \{x \mid x \leq -3\}$

⑤ $A = \{x \mid x > -2\}$
$B = \{x \mid x > 2\}$

⑥ $X = \{x \mid x \geq 1\}$
$Y = \{x \mid x > 4\}$

⑦ $A = \{x \mid x < 4\}$
$B = \{x \mid x \leq -1\}$

⑧ $X = \{x \mid x \geq 3\}$
$Y = \{x \mid x \leq -2\}$

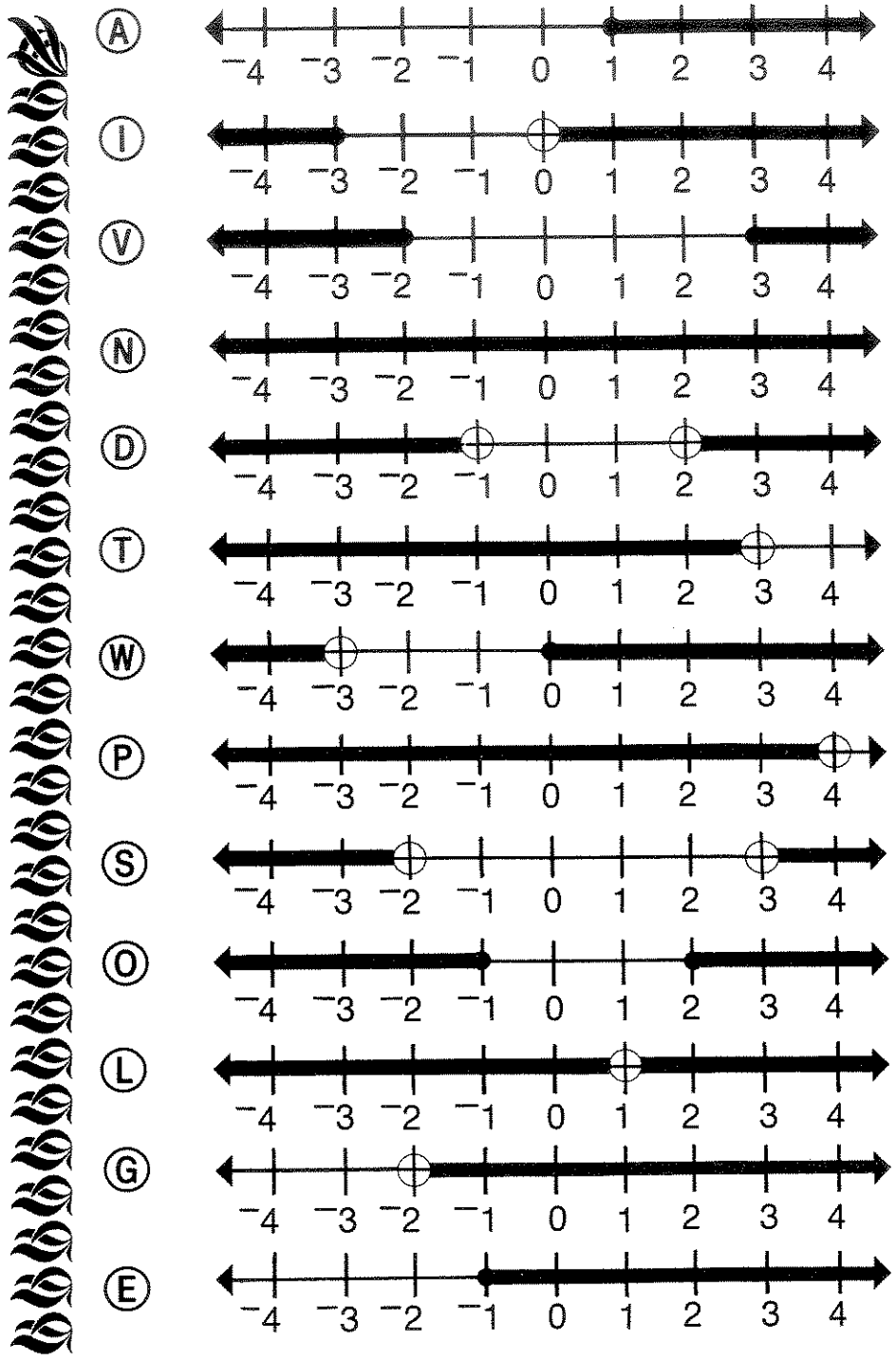
⑨ $A = \{x \mid x = -1\}$
$B = \{x \mid x > -1\}$

⑩ $X = \{x \mid x = 0\}$
$Y = \{x \mid x < 3\}$

⑪ $A = \{x \mid x < 1\}$
$B = \{x \mid x > 1\}$

⑫ $X = \{x \mid x \geq -4\}$
$Y = \{x \mid x < 0\}$

⑬ $A = \{x \mid x > 3\}$
$B = \{x \mid x < -2\}$



4	10	3	6	13	11	4	8	4	12	5	2	12	13	7	4	12	13	6	12	1	12	9	9	1	11	9	13

What Did The Mother Worm Say To The Teenage Worm?

Find the INTERSECTION of the two given sets in the column of graphs below. Write the letter next to the graph in each box that contains the number of the exercise. Keep working and you will discover the answer to the title question.

① $R = \{x \mid x > -2\}$
$S = \{x \mid x < 3\}$

② $P = \{x \mid x \geq -2\}$
$Q = \{x \mid x \leq 3\}$

③ $R = \{x \mid x > 0\}$
$S = \{x \mid x \leq 4\}$

④ $P = \{x \mid x \geq -3\}$
$Q = \{x \mid x < -1\}$

⑤ $R = \{x \mid x > -1\}$
$S = \{x \mid x > 2\}$

⑥ $P = \{x \mid x > -4\}$
$Q = \{x \mid x \geq 0\}$

⑦ $R = \{x \mid x \leq -1\}$
$S = \{x \mid x \leq -2\}$

⑧ $P = \{x \mid x \geq -3\}$
$Q = \{x \mid x \leq 3\}$

⑨ $R = \{x \mid x < 2\}$
$S = \{x \mid x < 4\}$

⑩ $P = \{x \mid x = 3\}$
$Q = \{x \mid x < 4\}$

⑪ $R = \{x \mid x \geq 0\}$
$S = \{x \mid x \leq -3\}$

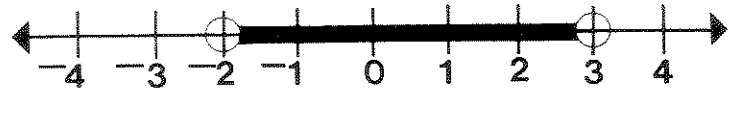
⑫ $P = \{x \mid x \geq 0\}$
$Q = \{x \mid x < 4\}$

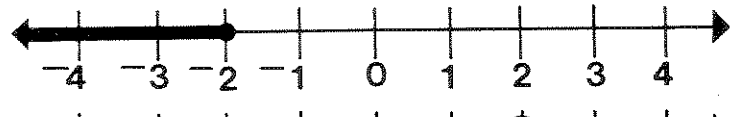
⑬ $R = \{x \mid x \geq -2\}$
$S = \{x \mid x = -2\}$

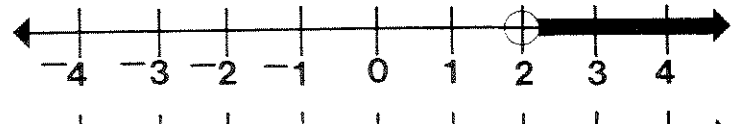
Ⓥ 

Ⓦ 

Ⓔ 

Ⓞ 

Ⓨ 

Ⓝ 

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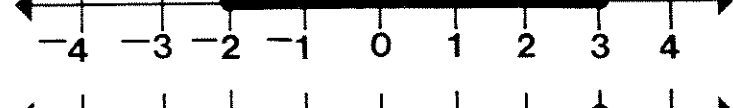
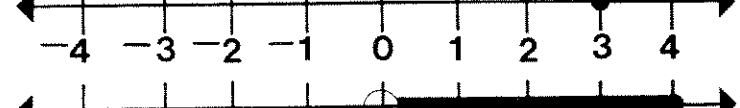
Ⓐ 

Ⓑ 

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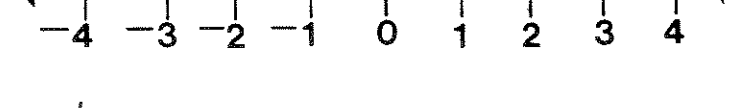
Ⓗ 

Ⓤ 

Ⓘ ϕ

4	9	12	13	12	11	5	12	2	13	3	9	9	2	8	12	7	1	6	10	12	12	5

What is ABCDEFGHIJKLMNOPQRSTUVWXYZ, Slurp?

Match any compound inequality below with the graph of its solution set. Write the letter next to the graph in each box that contains the number of that exercise. Keep working and you will discover the answer to the title question.

① $\{x \mid x > 1 \text{ or } x \leq -2\}$

② $\{x \mid x \geq -3 \text{ and } x < 2\}$

③ $\{x \mid x \geq 3 \text{ or } x \leq 0\}$

④ $\{x \mid x > 1 \text{ and } x < 4\}$

⑤ $\{x \mid x \geq -1 \text{ or } x < -2\}$

⑥ $\{x \mid x \geq -2 \text{ and } x \leq 3\}$

⑦ $\{x \mid x > 0 \text{ or } x > 2\}$

⑧ $\{x \mid x > 0 \text{ and } x > 2\}$

⑨ $\{x \mid x \leq -1 \text{ or } x < 0\}$

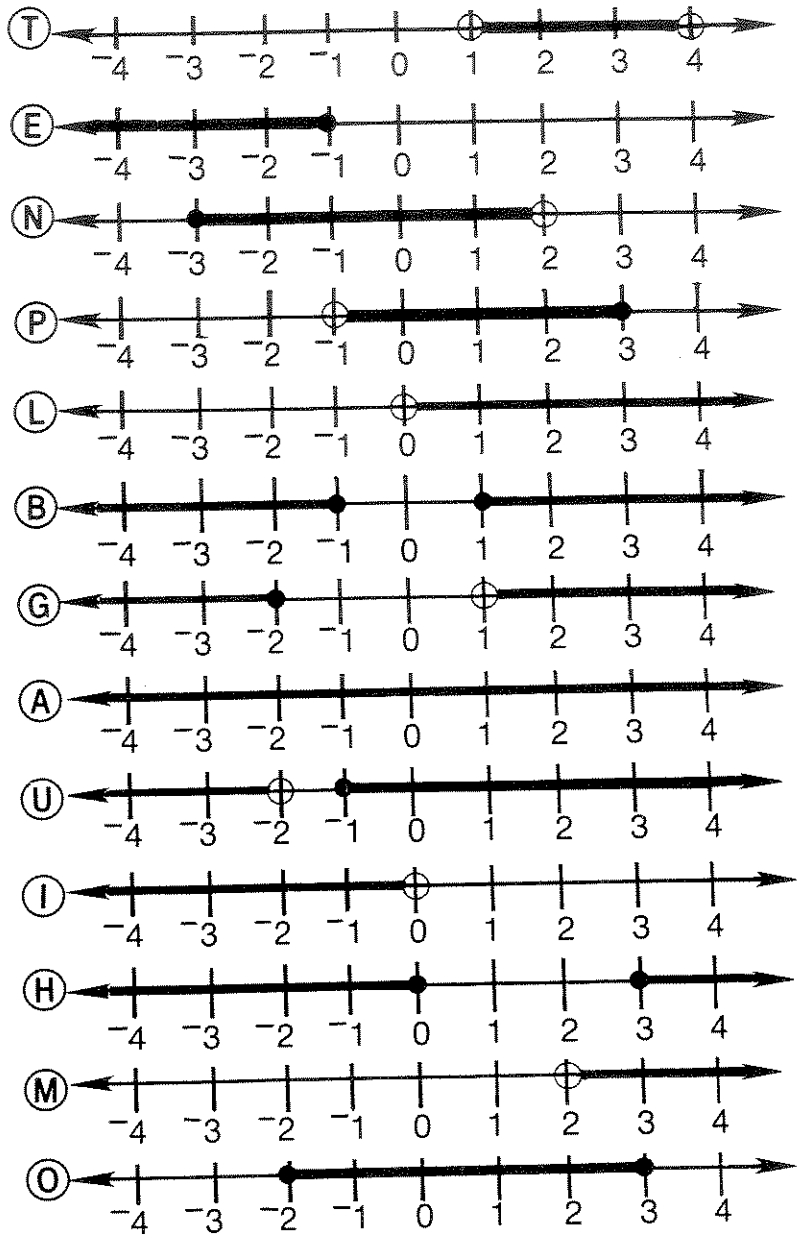
⑩ $\{x \mid x \leq -1 \text{ and } x < 0\}$

⑪ $\{x \mid x \geq 1 \text{ or } x \leq -1\}$

⑫ $\{x \mid x \geq 1 \text{ and } x \leq -1\}$

⑬ $\{x \mid x > -1 \text{ or } x \leq 3\}$

⑭ $\{x \mid x > -1 \text{ and } x \leq 3\}$



12	6	8	10	6	2	10	10	13	4	9	2	1	13	7	14	3	13	11	10	4	12	6	5	14

Name _____

Motoring Through Math

Which state builds more cars and trucks than any other state in the United States? (Hint: This state is the only state touched by four of the five Great Lakes and the only state divided into two parts.)

To find out, solve the compound inequalities for x below. Match each compound inequality in Column A to its graph in Column B. Read down the column of written letters to discover the answer.

Column A

_____ 1. $-6 \geq x - 4 > 4$

_____ 2. $-4 \leq 3 - x \leq 2$

_____ 3. $22 > -4x - 18 > -58$

_____ 4. $6 - 2x > 20$ or $8 - x \leq 0$

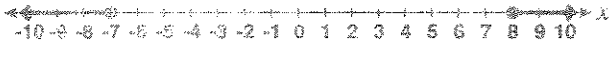
_____ 5. $-12 \leq 2x - 6 < 4$

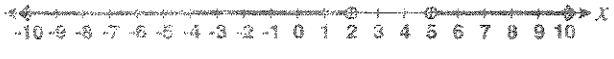
_____ 6. $2 > 8x - 14 > 26$

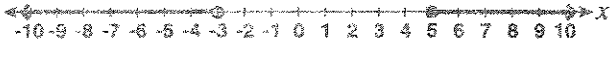
_____ 7. $-3x \leq -27$ or $2x - 8 \leq 6$

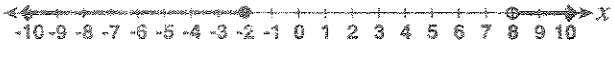
_____ 8. $-2x > 6$ or $x - 7 \geq -2$

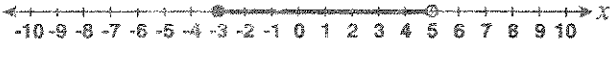
Column B

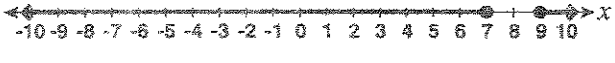
H. 

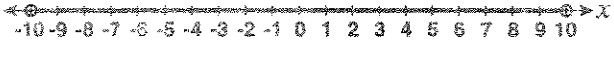
G. 

N. 

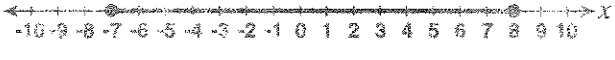
M. 

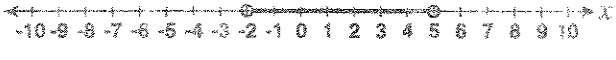
I. 

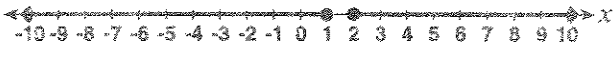
A. 

C. 

I. 

O. 

B. 

R. 

Answer: _____

Name Date

Solving equations with absolute values

Remember, the absolute value of a real number is the distance between that number and 0 on a number line. For example, 7 and -7 both have an absolute value of 7 since they are both the same distance from 0, 7 units. Therefore, we can write the equation $|x| = 7$ as $x = 7$ or $x = -7$. Thus, this equation has two solutions, 7 and -7.

So, when solving absolute value equations, simply set the expression, within the absolute value sign, equal to a negative and to a positive and solve for x in both.

$|x + 4| = 5$

$x + 4 = 5$ or $x + 4 = -5$

$x = 1$ $x = -9$

Thus, the solutions are 1 and -9.

$-9 + 2|x - 5| = 11$ Add 9 to both sides.

$2|x - 5| = 20$ Divide by 2 on both sides.

$|x - 5| = 10$

$x - 5 = 10$ or $x - 5 = -10$

$x = 15$ $x = -5$

Thus, the solutions are 15 and -5.

Note: First, get the absolute value by itself before setting the expression within it equal to a negative and a positive number.

Isolate each absolute value on one side of the equation.

1. $6 + |8x - 3| = 12$

2. $9 + 3|x + 2| = 12$

3. $|x - 16| - 11 = 13$

4. $-4|x - 6| - 5 = 15$

Solve each equation.

5. $|x| = 6$

6. $|8 - x| = 5$

7. $-8 + 5|2x - 1| = 17$

8. $-3|x| = -27$

9. $3|x + 12| = 15$

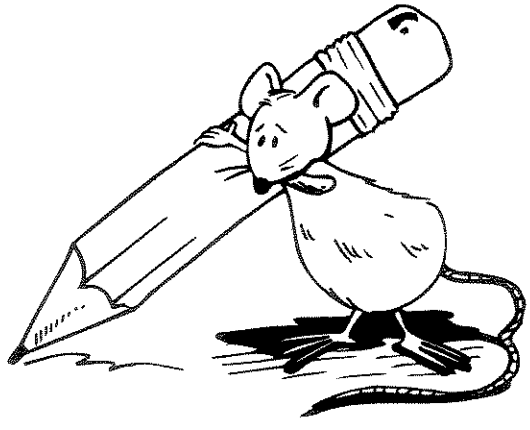
10. $4|3x - 3| + 10 = 34$

11. $|x + 5| = 12$

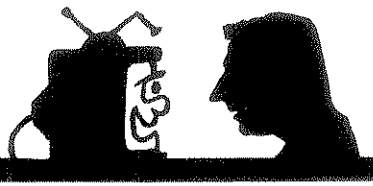
12. $-2|x - 1| = -4$

13. $|x - 2| = 7$

14. $-7 + |x + 8| = 9$



According to Famous TV Critic Bube Tube, Why Is Television Called a Communications "Medium"?



Solve each open sentence. Find your answer below and notice the two letters next to it. Write these letters in the two boxes above the exercise number at the bottom of the page.

(1) $|x + 2| = 7$

(2) $|3x - 6| = 15$

(3) $|9 + 4x| = 1$

(4) $|20 - 7x| = 8$

Answers:

(ET) $1\frac{1}{2}$, 6

(EN) 7, −3

(EI) 5, −9

(WE) $1\frac{5}{7}$, 4

(SM) 9, −4

(HE) $-2, -2\frac{1}{2}$

(5) $|n| > 3$

(6) $|n| < 4$

(7) $|n - 6| \geq 7$

(8) $|n + 3| \leq 10$

Answers:

(IT) $-4 < n < 4$

(LA) $n \geq 3$ or $n \leq -13$

(AR) $-13 \leq n \leq 7$

(BE) $n \geq 13$ or $n \leq -1$

(US) $n > 3$ or $n < -3$

(EA) $4 \leq n \leq 13$

(9) $|2d - 8| > 12$

(10) $|5d + 5| < 20$

(11) $|3d + 18| \leq 6$

(12) $|5 - 2d| > 7$

Answers:

(AP) $-6 \leq d \leq 4$

(TS) $d > 10$ or $d < -2$

(CA) $d < -1$ or $d > 6$

(NE) $-5 < d < 3$

(OR) $-8 \leq d \leq -4$

(PA) $d < -3$ or $d > 7$

(13) $6|y + 1| = 60$

(14) $3|y - 8| + 15 = 21$

(15) $9|2y - 4| \geq 36$

(16) $|7y + 14| - 5 < 30$

Answers:

(AB) 8, −5

(RR) $-7 < y < 3$

(NE) 10, 6

(RE) $y \geq 7$ or $y \leq 2$

(DO) 9, −11

(LL) $y \geq 4$ or $y \leq 0$

7	12	5	1	9	14	6	3	16	8	2	11	4	15	13	10

"What kind of house is easiest to pick up?"

Solve each equation. The answer to each problem will match a letter that will allow you to figure out the joke.

1. $|2x| = 10$
2. $|x - 3| = 12$
3. $|2x - 1| = 11$
4. $|3x| + 7 = 13$
5. $|x + 1| + 8 = 10$
6. $2|x - 3| + 10 = 8$
7. $|x^2 - 9| = 0$
8. $|-x| = 1$
9. $-|x + 3| = -4$
10. $|x + 2| + |x| = 6$

H: ± 3

U: 1, -7

A: 4, -3

W: ± 9

I: 6, -5

G: No solution

E: ± 2

H: ± 5

F: All real numbers

R: 5, -6

L: ± 1

O: 15, -9

T: 2, -4

S: 1, -3

8	3	6	1	10	7	2	9	5	4

Solving absolute value equations

Joke #17

e _____

Towering Tallness

The tallest man in the world that ever lived is known to have been 8 feet 11 1/10 inches tall. He was born on February 22, 1918, in Alton, Illinois. He weighed 491 pounds. What is the name of this famous man?

To find out, solve for x. Circle the letter that is next to the solution for each equation. Read the circled letters downward to reveal the two-word answer.

1. $|x + 2| = 4$
2. $|x + 3| = 11$
3. $|x - 9| = 14$
4. $4 + |x - 2| = 7$
5. $^{-}4 + |x + 1| = 10$
6. $^{-}|x - 9| = ^{-}12$
7. $^{-}12 + |x - 1| = 3$
8. $4 - |x + 6| = 3$
9. $|x + 3| - 8 = 10$
10. $|^{-}2x + 4| = 8$
11. $|3x - 9| - 3 = 12$
12. $4 - |x - 6| = ^{-}2$

(R) $x = 2, ^{-}6$

(A) $x = ^{-}14, ^{-}8$

(M) $x = 5, 23$

(E) $x = 5, ^{-}1$

(R) $x = 13, ^{-}15$

(J) $x = 3, ^{-}21$

(W) $x = ^{-}14, 16$

(C) $x = 7, 5$

(D) $x = 15, ^{-}21$

(S) $x = 2, 6$

(O) $x = 8, ^{-}2$

(N) $x = 0, ^{-}12$

(S) $x = ^{-}2, ^{-}6$

(O) $x = ^{-}14, 8$

(B) $x = 23, ^{-}5$

(U) $x = ^{-}5, 1$

(L) $x = ^{-}13, ^{-}15$

(T) $x = ^{-}3, 21$

(A) $x = 14, ^{-}16$

(A) $x = ^{-}7, ^{-}5$

(K) $x = ^{-}15, 21$

(L) $x = ^{-}2, 6$

(U) $x = ^{-}8, 2$

(W) $x = 0, 12$

Answer: _____

Name Date

Solving inequalities with absolute values

When solving inequalities with an absolute value, remember the following:

1. $|ax + b| < c$, where a, b, and c are real numbers, is equal to $-c < ax + b < c$. ($<$ can be replaced with $\leq$.)
2. $|ax + b| > c$, where a, b, and c are real numbers, is equal to $ax + b < -c$ or $ax + b > c$. ($>$ can be replaced with $\geq$.)

Once the absolute value inequality is set up as one of the above compound inequalities, solve for the values of x.

$|x + 7| < 10$

$-10 < x + 7 < 10$

$-17 < x < 3$

Thus, the solution is all real numbers greater than -17 and less than 3.

$|x - 12| \geq 13$

$x - 12 \leq -13$ or $x - 12 \geq 13$

$x \leq -1$ $\quad$ $x \geq 25$

Thus, the solution is all real numbers less than -1 or greater than 25.

Rewrite each absolute value as a compound inequality.

1. $|x| > 7$

2. $|x| \leq 2$

3. $|7 - 3x| > 10$

4. $|x - 9| < 12$

5. $|2x - 5| \geq 7$

6. $|5 + 6x| < 11$

Solve each inequality.

7. $|x - 3| < 6$

8. $|3 - x| \leq 5$

9. $|2x + 1| \leq 7$

10. $|7 + x| \geq 8$

11. $|3x - 3| > 12$

12. $|8 - x| < 3$

Solve each inequality. Sketch its graph.

13. $|x + 9| < 1$

14. $|1 + 2x| > 5$

15. $|x + 7| > 6$

16. $|4x - 10| \geq 2$

17. $|6 - x| \leq 3$

18. $|3x - 6| \leq 12$

"What did the new lightbulb say to the old lightbulb?"

Solve each inequality. The answer to each problem will match a letter that will allow you to figure out the joke.

1. $|2x| < 10$

2. $|x - 3| < 1$

3. $|1 - 2x| < -7$

4. $|3x| - 4 > 8$

5. $|x + 3| + 10 < 13$

6. $|2x| + 13 > 7$

7. $|2x| > 0$

8. $|2x - 6| > |x + 4|$

9. $|x - 3| + |x| < 7$

K: $-4 < x < 9$

T: $x < 0$ or $x > 0$

P: No Solution

M: $x < 2$ or $x > 8$

U: $-2 < x < 5$

G: $-6 < x < 0$

A: $-1 < x < 2$

I: $2 < x < 4$

O: $x < -3$ or $x > 3$

H: $x < -4$ or $x > 4$

N: All Real Numbers

E: $-5 < x < 5$

B: $x < -6$ or $x > 8$

L: $x < {}^{2}/_{3}$ or $x > 10$

8	2	5	4	7	1	6	9	3

Solving absolute value inequalities

Joke #27

Name ____________________

Computer Caught

Which way did the rascal go when it stole a computer?

To find out, solve each equation. Identify the graph that matches each solution. Next to each graph, write the letter representing the given equation. Read the letters next to the graphs from left to right to reveal the two-word answer.

A. $|x - 2| > 1$

W. $|2x + 5| \le 3$

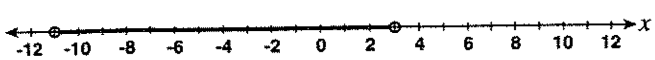
T. $|2x + 3| < 9$

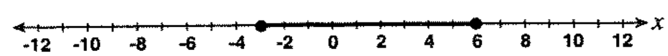
Y. $|4x - 8| \ge 20$

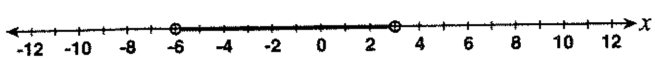
A. $|{}^-3 + 2x| \le 9$

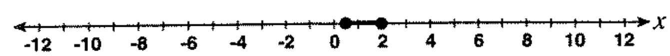
D. $|x + 4| < 7$

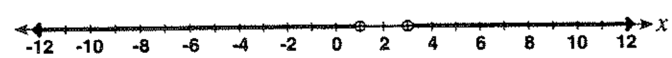
A. $|5 - 4x| \le 3$

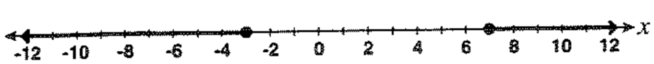










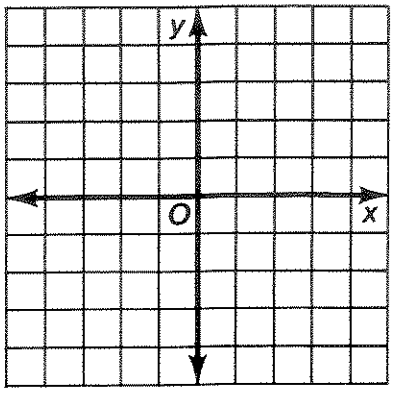


Answer: ____________________

What Is the Proper Thing to Say When You Introduce a Hamburger?

Graph each inequality below. Then read the two statements under the coordinate grid for that exercise. Circle the letter of the statement that correctly describes the location of the graph. Print this letter in each box at the bottom of the page that contains the exercise number.

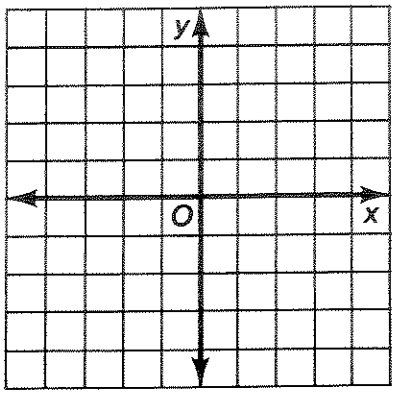
1 $y \leq x + 2$



A All four quadrants; includes boundary line.

I Quadrants I, II, IV; includes boundary line.

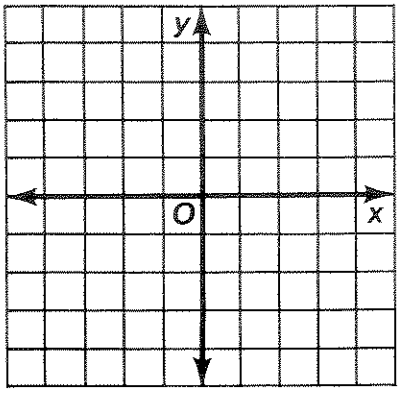
2 $y < \frac{2}{3}x - 1$



N Quadrants I, II, IV; excludes boundary line.

Y Quadrants I, III, IV; excludes boundary line.

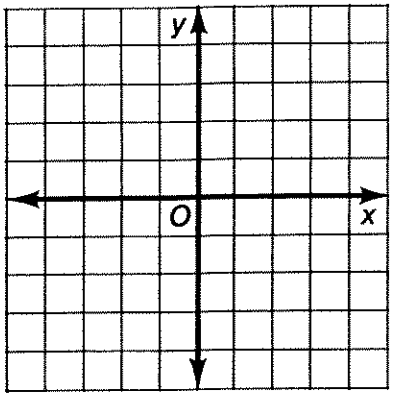
3 $y \geq -2x - 3$



R Quadrants I, III, IV; includes boundary line.

P All four quadrants; includes boundary line.

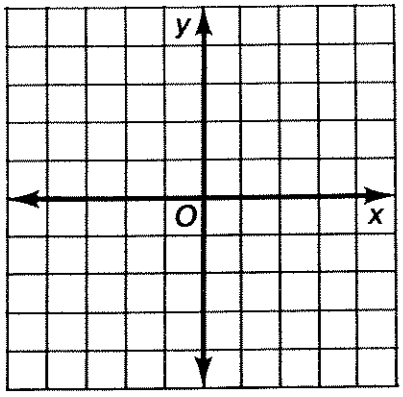
4 $y > -\frac{1}{2}x + 1$



O Quadrants I, II, IV; includes boundary line.

E Quadrants I, II, IV; excludes boundary line.

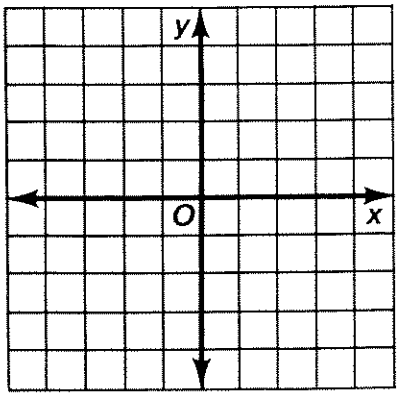
5 $y < \frac{5}{4}x - 2$



M Quadrants I, III, IV; excludes boundary line.

S Quadrants I, II, IV; excludes boundary line.

6 $y \geq -x + 3$



L All four quadrants; includes boundary line.

T Quadrants I, II, IV; includes boundary line.

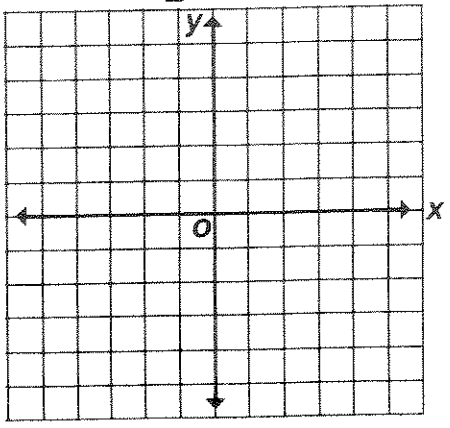
5	4	4	6	3	1	6	6	2

OBJECTIVE 2–h: To graph linear inequalities in two variables (inequalities are solved for y).

Why Did the Three Pigs Leave Home?

Graph each inequality below. Circle the letter of the statement that correctly describes the location of the graph. Print this letter in each box at the bottom of page 31 that contains the number of the exercise.

① $y \geq \frac{1}{2}x - 3$

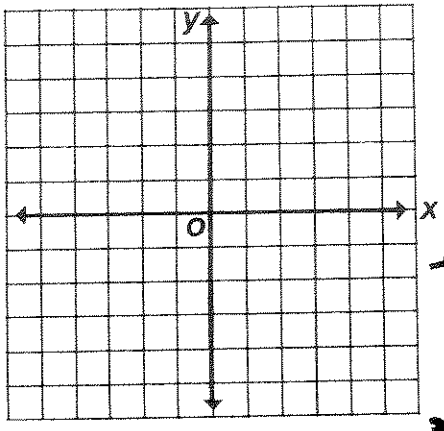


D Quadrants I, II, IV; includes boundary line.

E All four quadrants; includes boundary line.

I Quadrants I, III, IV; excludes boundary line.

② $x + y > 1$

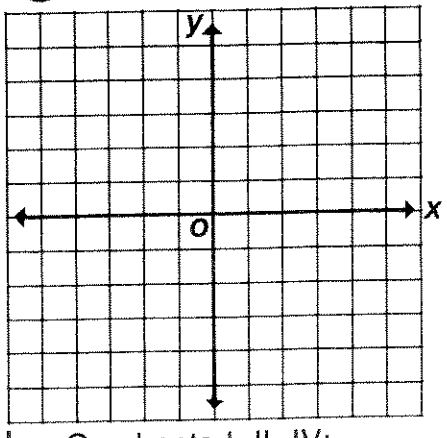


S Quadrants I, II, IV; excludes boundary line.

B All four quadrants; includes boundary line.

F Quadrants I, III, IV; excludes boundary line.

③ $y \leq 2x - 2$

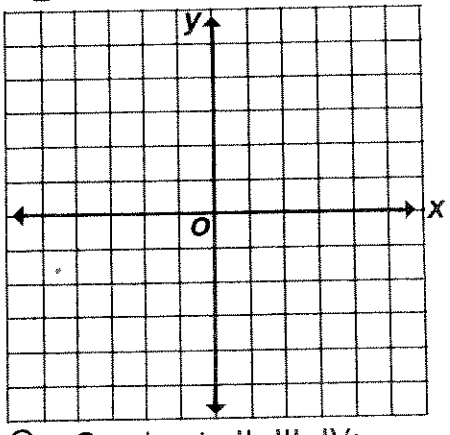


L Quadrants I, II, IV; includes boundary line.

T Quadrants I, III, IV; includes boundary line.

V All four quadrants; excludes boundary line.

④ $3x + 2y < 6$

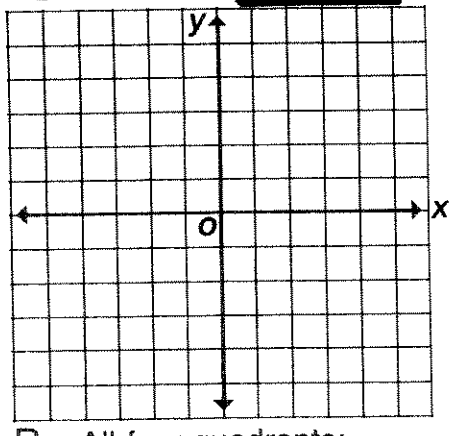


C Quadrants II, III, IV; excludes boundary line.

M Quadrants I, II, IV; includes boundary line.

O All four quadrants; excludes boundary line.

⑤ $y \geq 2$



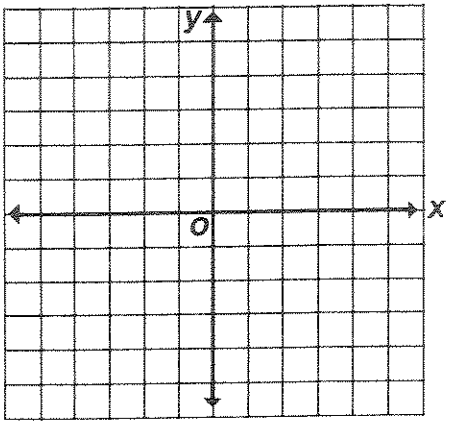
R All four quadrants; excludes boundary line.

U Quadrants II, III; includes boundary line.

H Quadrants I, II; includes boundary line.

OBJECTIVE 2–i: To graph linear inequalities in two variables (inequalities are not necessarily solved for y).

⑥ $x < -3$

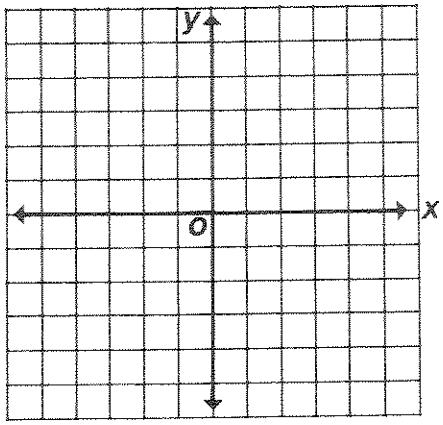


L Quadrants I, II; excludes boundary line.

W Quadrants II, III; excludes boundary line.

G Quadrants I, III; excludes boundary line.

⑦ $2x - 3y \leq 12$

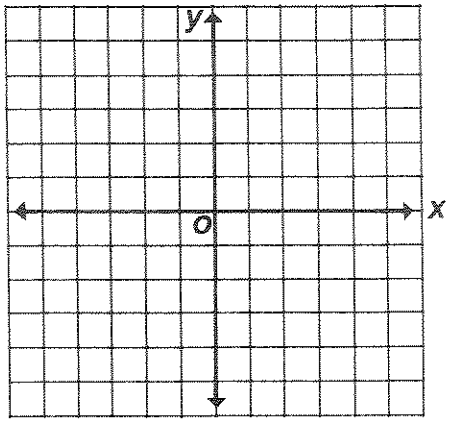


K Quadrants I, III, IV; excludes boundary line.

U Quadrants II, III, IV; includes boundary line.

I All four quadrants; includes boundary line.

⑧ $5x + 3y < x + 6$

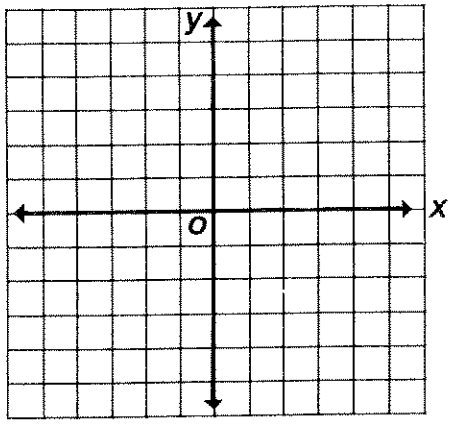


F All four quadrants; excludes boundary line.

P Quadrants I, II, III; excludes boundary line.

M Quadrants I, III, IV; excludes boundary line.

⑨ $3x + y > 0$

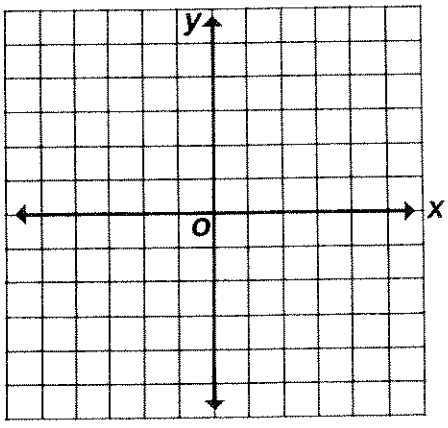


R Quadrants I, II, IV; excludes boundary line.

L All four quadrants; includes boundary line.

M Quadrants I, III, IV; excludes boundary line.

⑩ $2(x - y) \geq 5$

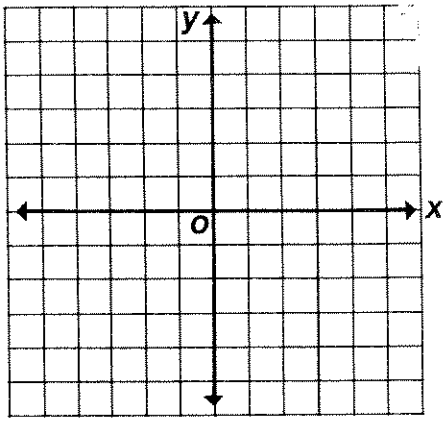


Y All four quadrants; excludes boundary line.

U Quadrants II, III, IV; includes boundary line.

A Quadrants I, III, IV; includes boundary line.

⑪ $5y - 2 \geq 3x - 7$



N Quadrants I, III, IV; excludes boundary line.

B All four quadrants; includes boundary line.

D Quadrants I, II, IV; includes boundary line.

3	5	1	7	9	8	10	3	5	1	9	6	10	2	10	11	4	10	9

ame _____

Album Astonishment

What is the best-selling album of all time, with global sales of 47 million and domestic sales of over 25 million? (After you find this answer, do you know which singer made this album?)

To find the answer, graph each system of linear inequalities. In front of each problem number, write the letter representing the quadrant(s) where the solution can be found. Read down the column of letters to identify the answer.

Column A

_____ **1.** $y \geq -1$
$x \geq -2$

_____ **2.** $3x - 5y \geq -25$
$y \geq 0, x \leq 0$

_____ **3.** $y \geq x$
$y \leq x + 3$

_____ **4.** $y \leq x$
$2x - y \geq 3$

_____ **5.** $y \geq -x$
$y \geq x$

_____ **6.** $x \geq 0, y \geq 0$
$x + 2y \leq 6$

_____ **7.** $x \geq 5$
$y \leq 4$

_____ **8.** $y + x \leq 4$
$y - x \geq 4$

Column B

L. Quadrants I and II

H. Quadrant II

R. Quadrants I, II, and III

I. Quadrants I, III, and IV

R. Quadrants II and III

T. Quadrants I, II, III, and IV

E. Quadrants I and IV

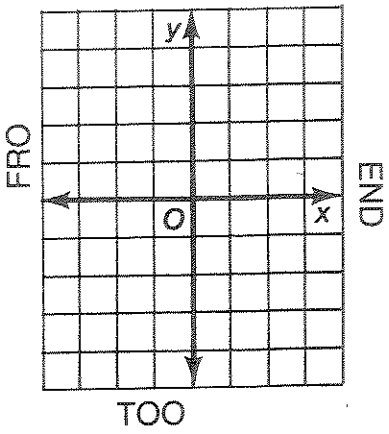
L. Quadrant I

Answer: _____

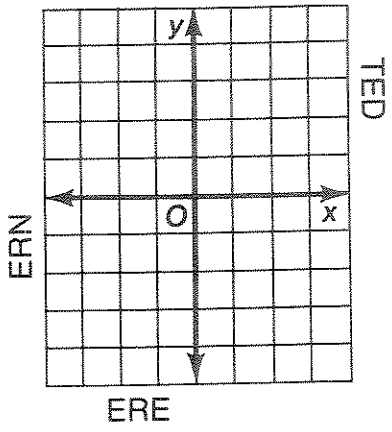
What Did the Toothless Old Termite Say When He Entered a Tavern ?

Graph each pair of inequalities below and indicate the solution set of the system with crosshatching or shading. The crosshatching or shading, if extended, would cover a set of three letters. Print these letters in the three boxes at the bottom of the page that contain the exercise number.

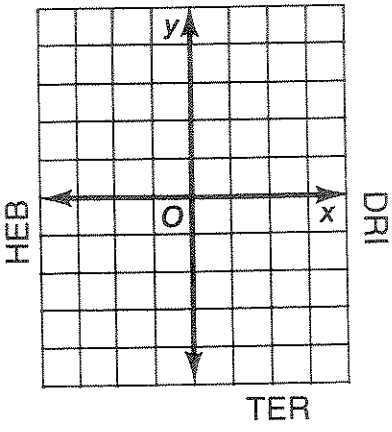
① $y \leq x - 1$
$y \geq -3$



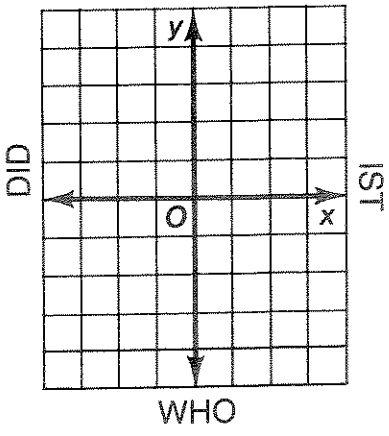
② $x \leq 2$
$y \leq \frac{2}{3}x - 1$



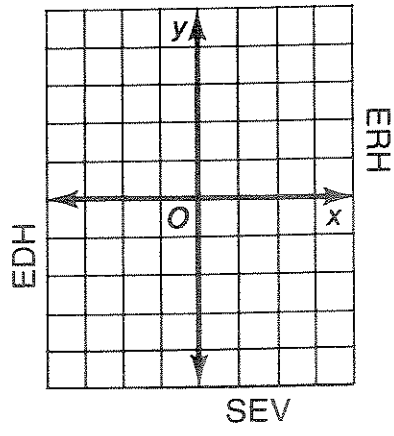
③ $y < -x + 1$
$y > \frac{1}{2}x - 2$



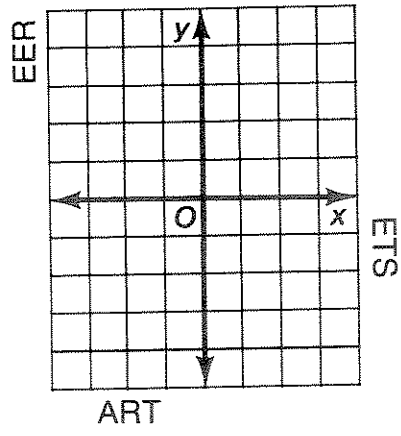
④ $y < x$
$3x + 2y > 4$



⑤ $x - 3y \leq 12$
$x > 2$



⑥ $y \leq 1$
$2x + y < 1$



4	4	4	3	3	3	6	6	6	1	1	1	5	5	5	2	2	2

OBJECTIVE 2–j: To solve systems of linear inequalities in two variables by graphing.