

Flashcards for Chapter 1 Test

Possible Topics on this Test

1. Slope
2. Writing Equations of Lines (refer to the concept map from 9/16) under SMART Board notes
3. Graphing Equations of Lines (3 methods refer to concept map from 9/16)
4. Linear Data (determining if a table is linear)
5. Correlation (Positive, Negative, None, Strength of r .)
6. Direct Variation (Finding k , Using k and the equation of variation)
7. Solving Absolute Value Equations
8. Solving Equations in One Variable.
9. Solving Literal Equations
10. Solving Inequalities in One Variable
11. Solving Absolute Value Inequalities

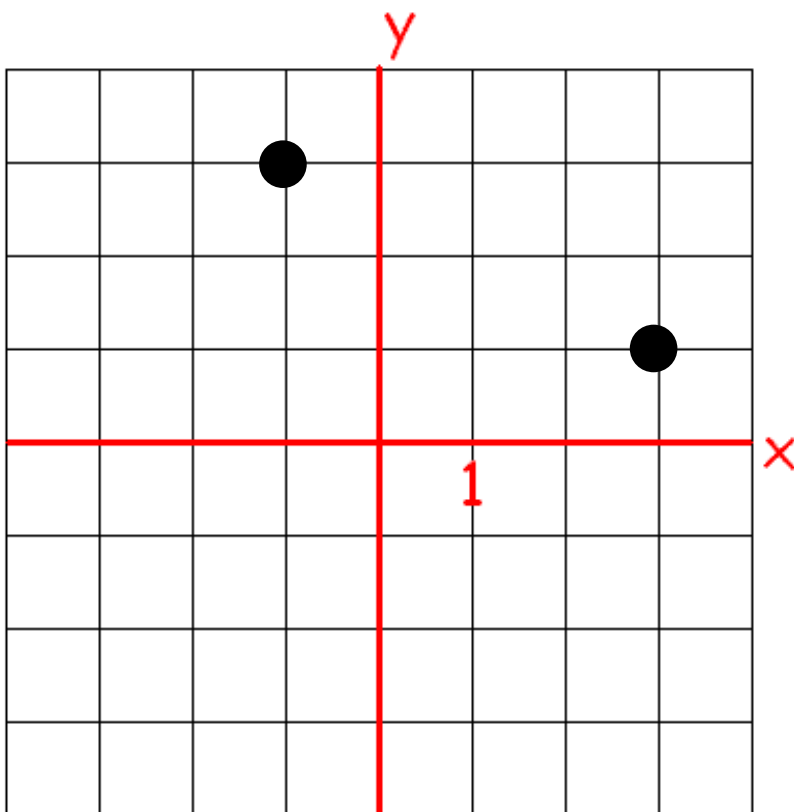
What is the Point-Slope Formula?

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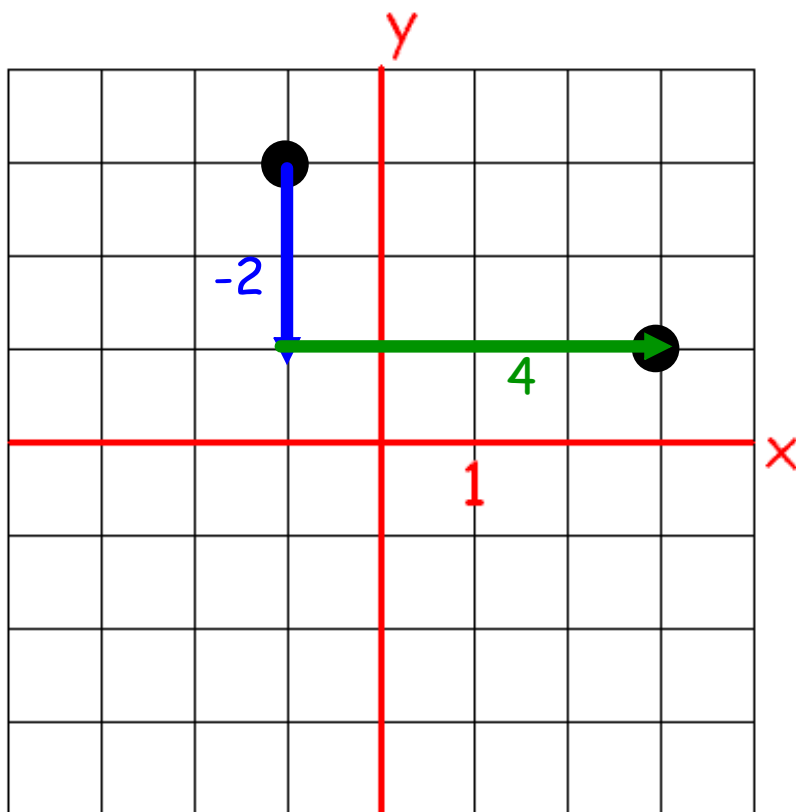
$$y = m(x - x_1) + y_1$$

Plug in for m , x_1 and y_1 .

What is the slope?

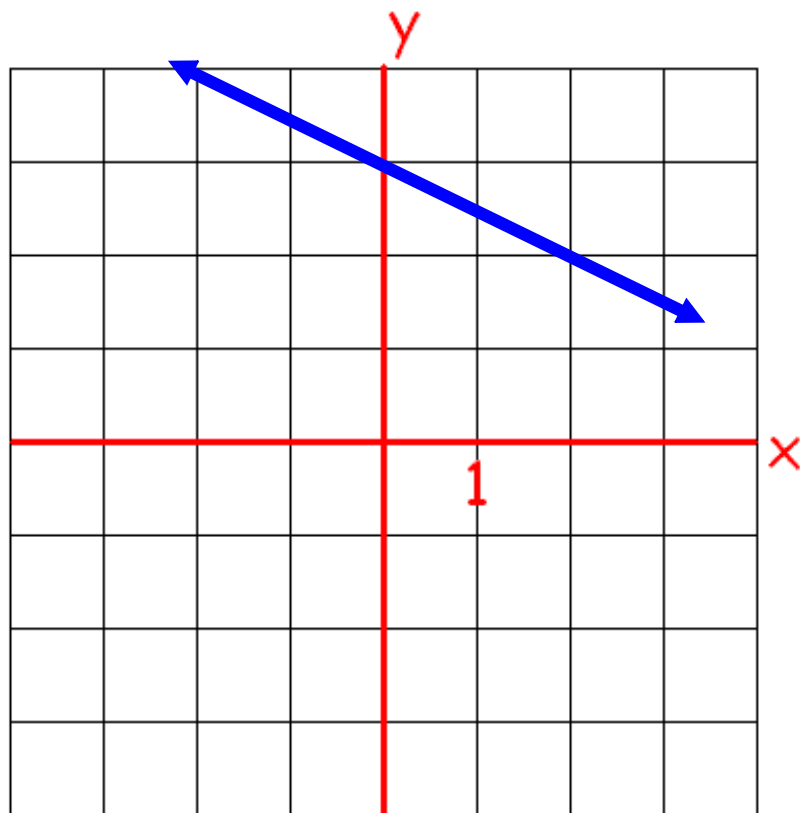


What is the slope?

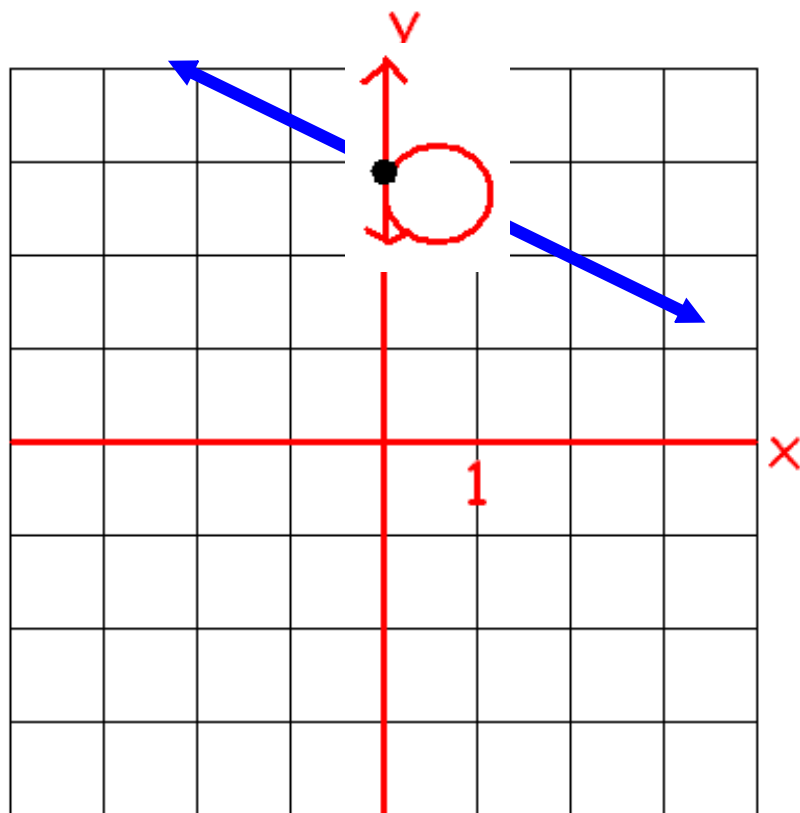


$$m = \frac{-2}{4} = -\frac{1}{2}$$

What is the y intercept?



What is the y intercept?



$$b=3$$

What is the formula for computing the **constant of variation** when you are given a direct variation problem?

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$$\frac{y}{x} = k$$

If you are given a table of values and asked...

"Is this table a linear data set?"

What do you do?

x	y
2	3
7	6
22	12
17	9

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-
1. Draw the "little arrows" to note what Δx and Δy is for each row of the data table.
 2. Determine the ratio of $\frac{\Delta y}{\Delta x}$ from row to row.
 3. If that ratio is the same every time (constant), it is linear.
If the ratio is NOT the same every time (variable), it is not linear.

If you are given a table of values and asked...

"Is this table a linear data set?"

What do you do?

x	y
2	3
7	6
22	12
17	9

Handwritten annotations: Green arrows on the left indicate Δx values: +5 (between 2 and 7), +15 (between 7 and 22), -5 (between 22 and 17). Blue arrows on the right indicate Δy values: +3 (between 3 and 6), +6 (between 6 and 12), -3 (between 12 and 9).

1. Draw the "little arrows" to note what Δx and Δy is for each row of the data table.

2. Determine the ratio of $\frac{\Delta y}{\Delta x}$ from row to row.

$$\begin{array}{ccc} \frac{3}{5} & \frac{6}{15} & \frac{-3}{5} \\ \downarrow & \downarrow & \downarrow \\ \frac{3}{5} & = & \frac{3}{5} = \frac{3}{5} \end{array}$$

A green arrow points from the first $\frac{3}{5}$ in the second row to the first $\frac{3}{5}$ in the third row.

3. If that ratio is the same every time (constant), it is linear.
If the ratio is NOT the same every time (variable), it is not linear.

If you are given a table of values and asked...

"Does y vary directly as x in this table?"

What do you do?

x	y
0	0
2	6
-3	-9
400	1200

If you are given a table of values and asked...

"Does y vary directly as x in this table?"

What do you do?

x	y
0	0
2	6
-3	-9
400	1200

1. Do the ratio of y to x for each row.
2. If the ratio is the same (constant) for each row, it is direct variation.*
If the ratio is NOT the same for each row, it is not direct variation.

* 0,0 creates a ratio of 0/0 which is fine in all direct variations

If you are given a table of values and asked...

"Does y vary directly as x in this table?"

What do you do?

x	y
0	0
2	6
-3	-9
400	1200

yes

$$\frac{y}{x} = \frac{0}{0} \quad \frac{6}{2} \quad \frac{9}{-3} \quad \frac{1200}{400}$$

$$\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$$

$$\emptyset \quad \underline{3} = \underline{3} = \underline{3}$$

1. Do the ratio of y to x for each row.
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What is the method most commonly used to solve for x in the following problem?

$$\frac{2x + 4}{7} = \frac{3x + 7}{9}$$

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Cross Multiplication

$$9(2x + 4) = 3(3x + 7)$$

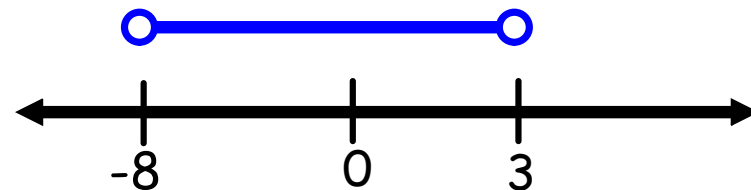
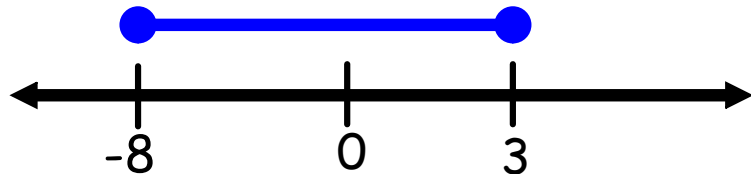
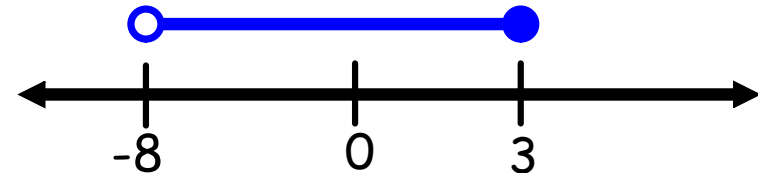
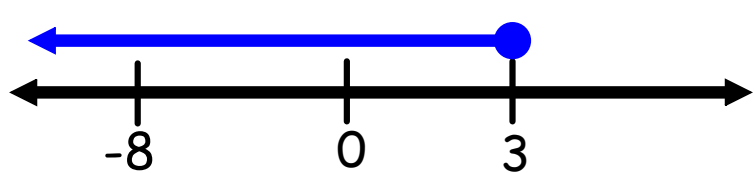
(This problem is then completed by doing the 5-step method to solve for x .)

What are the five steps we often use to solve equations in one unknown?

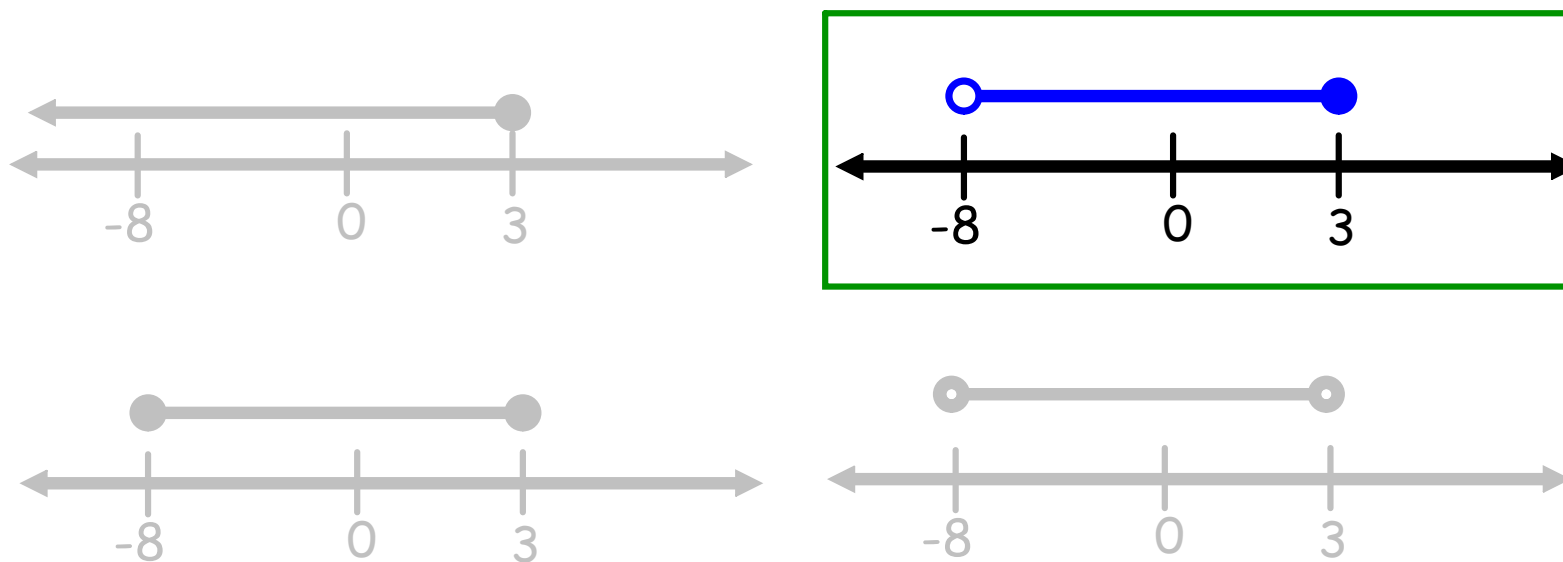
What are the five steps we often use to solve equations in one unknown?

1. Distribute.
2. Collect like terms on both sides.
3. "Gather" all your variables onto one side of the equation.
4. Undo all of your additions and subtractions by doing the opposite operation.
5. Undo all of your multiplications and divisions by doing the opposite operation.

Which of the following graphs represents the interval notation of $(-8, 3]$?



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How do you collect like terms in the following expression?

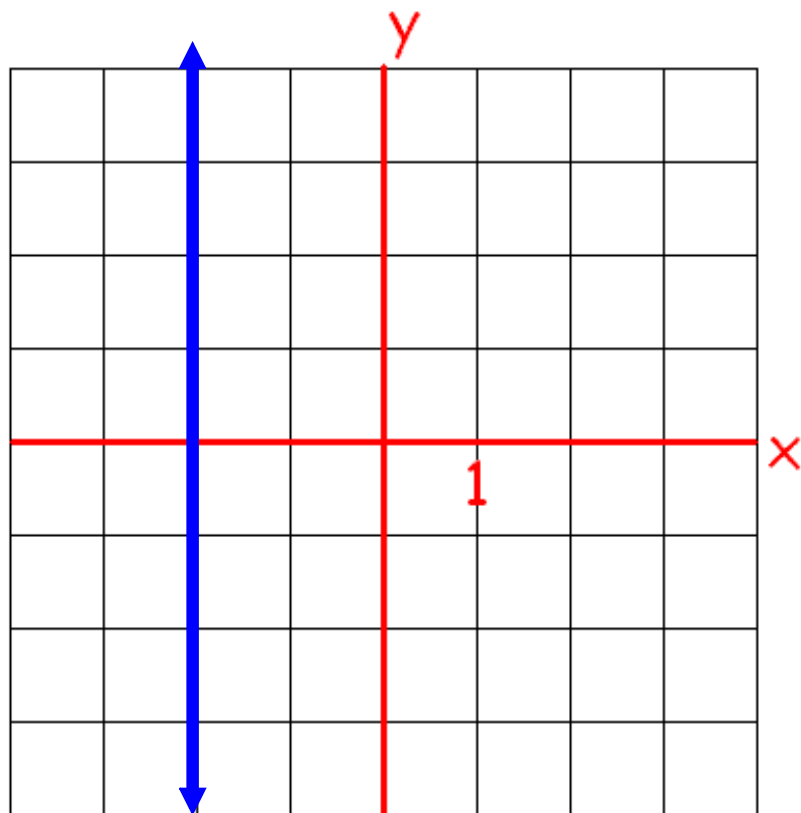
$$ax + gx$$

How do you collect like terms in the following expression?

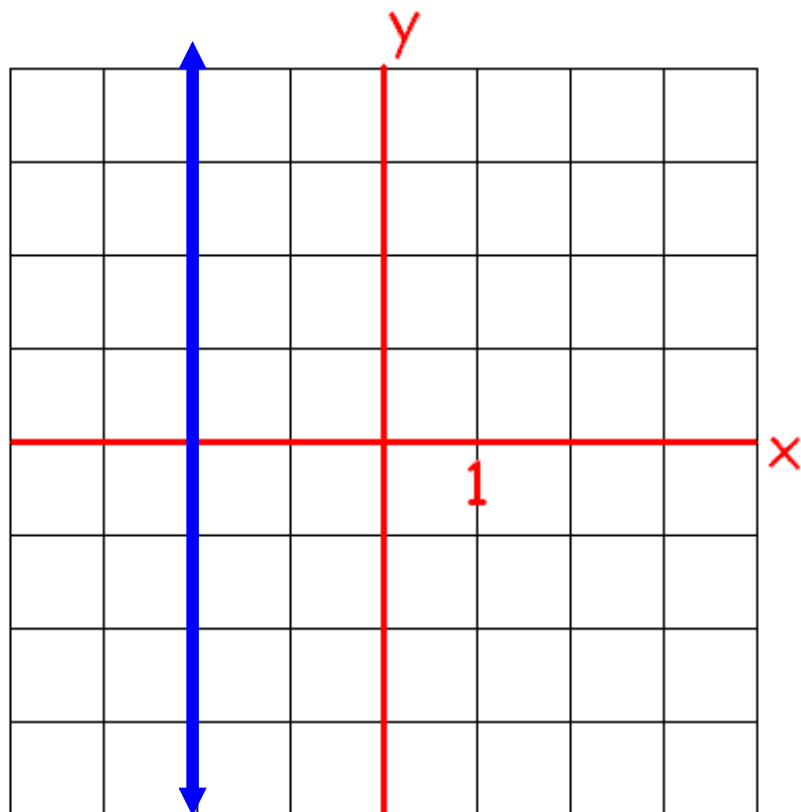
$$ax + gx$$

$$(a+g)x$$

What is the equation of the following line?



What is the equation of the following line?



$$x = -2$$

Suppose you are given a word problem that says...

"Your pay varies directly as the number of hours
you work does."

What do you write to start the problem?

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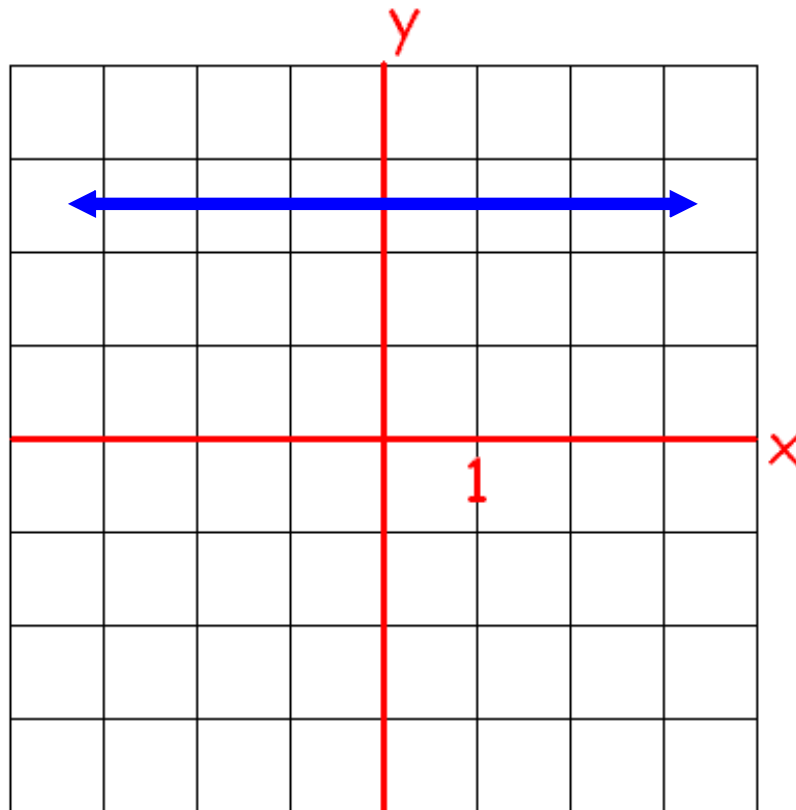
"Your pay varies directly as the number of hours you work does."

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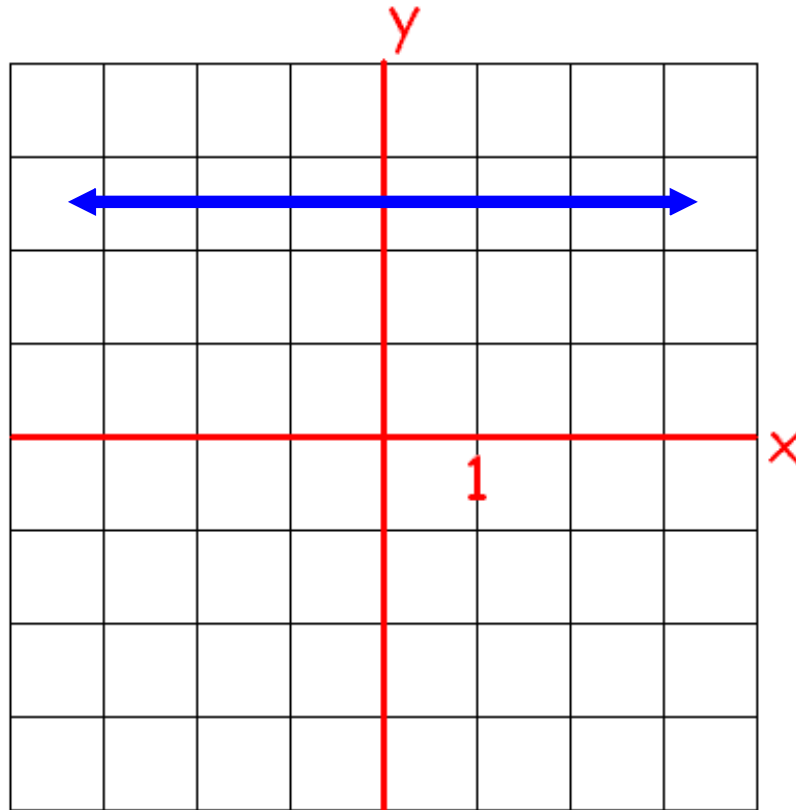
$$P = kh$$

similar to $y = kx$

What is the equation of the following line?



What is the equation of the following line?



$$y = 2.5$$

How many solutions for x does the following equation have?

$$|2x + 3| = -9$$

How many solutions for x does the following equation have?

$$|2x + 3| = \ominus 9$$

There are **NO** solutions to this equation.

Absolute Value is a distance and distance is **NEVER** negative.

What is the slope formula?

What is the slope formula?

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

When you are told that y varies direct as x in a problem, what formula do you immediately write?

When you are told that y varies direct as x in a problem,
what formula do you immediately write?

$$y = kx$$

What is the first step in the following problem?

Please solve for x.

$$|4x + 2| - 9 = 12$$

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Please solve for x.

$$|4x + 2| - 9 = 12$$

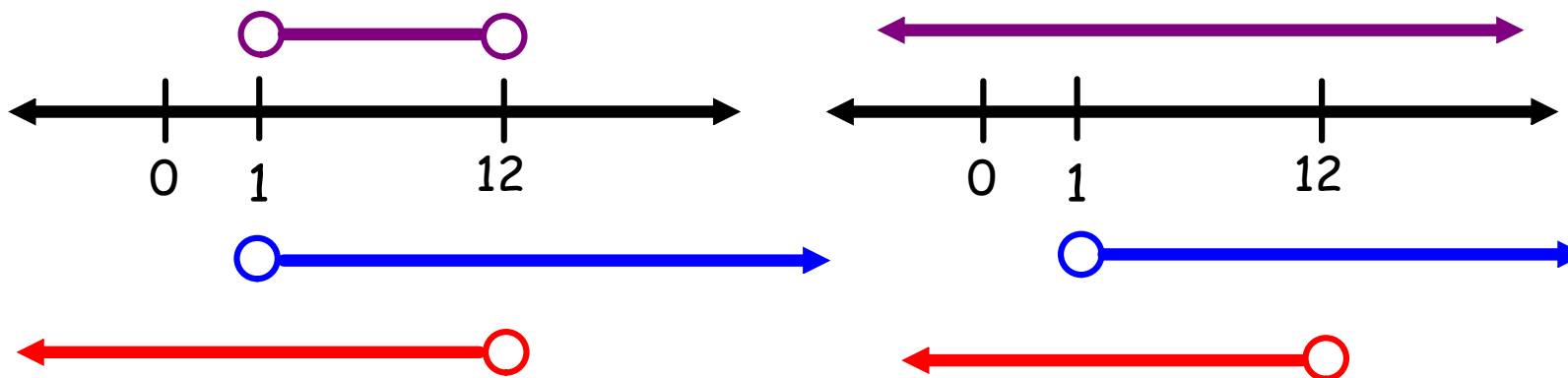
Add 9 to both sides
to get the absolute
value by itself.

$$+9 \quad +9$$

$$|4x + 2| = 21$$

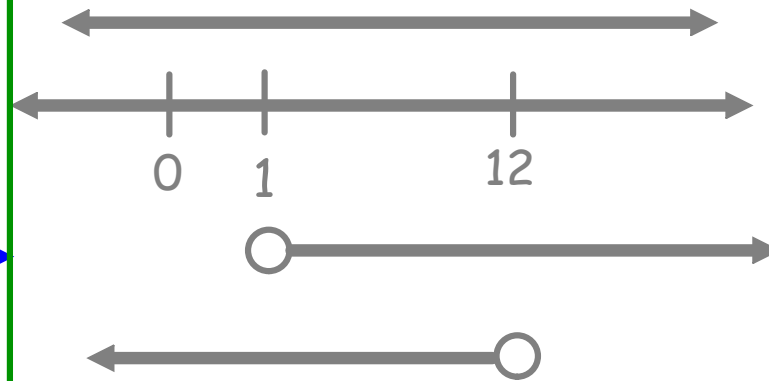
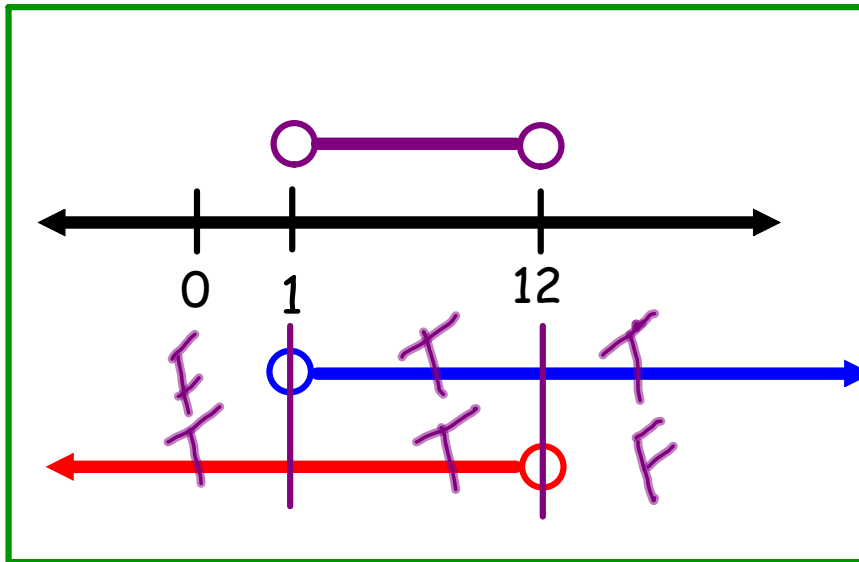
Which of the following is graph of

$$x > 1 \text{ and } x < 12$$

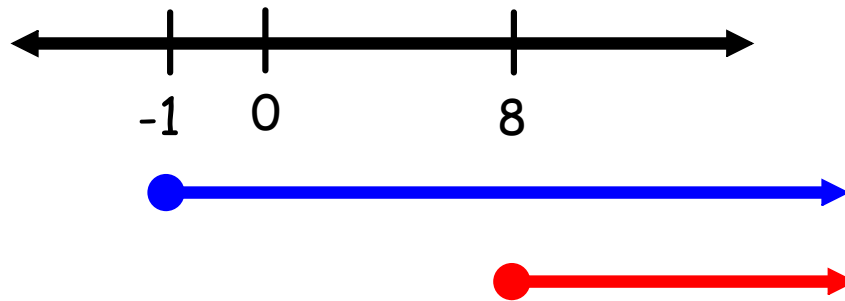


Which of the following is graph of

$x > 1$ and $x < 12$ need 2T's

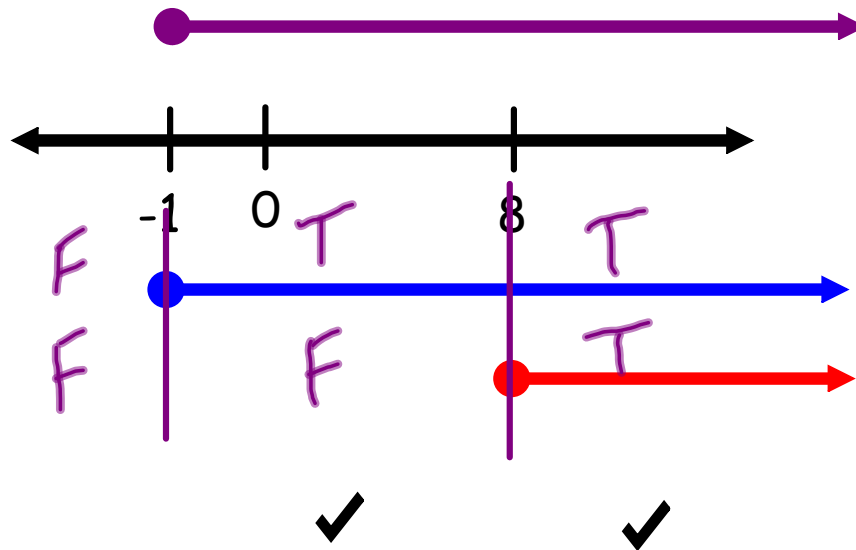


How many T's do we look for in an "OR" statement?

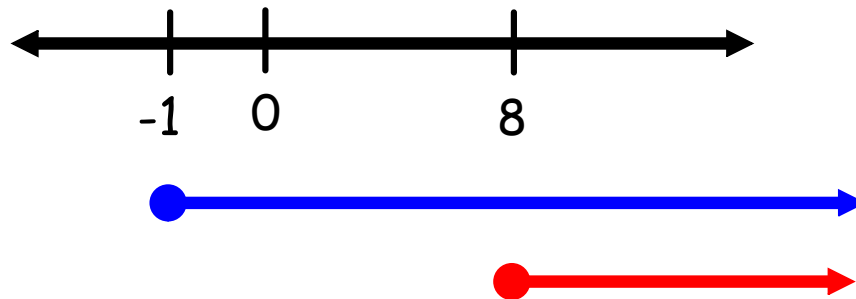


How many T's do we look for in an "OR" statement?

One or more.

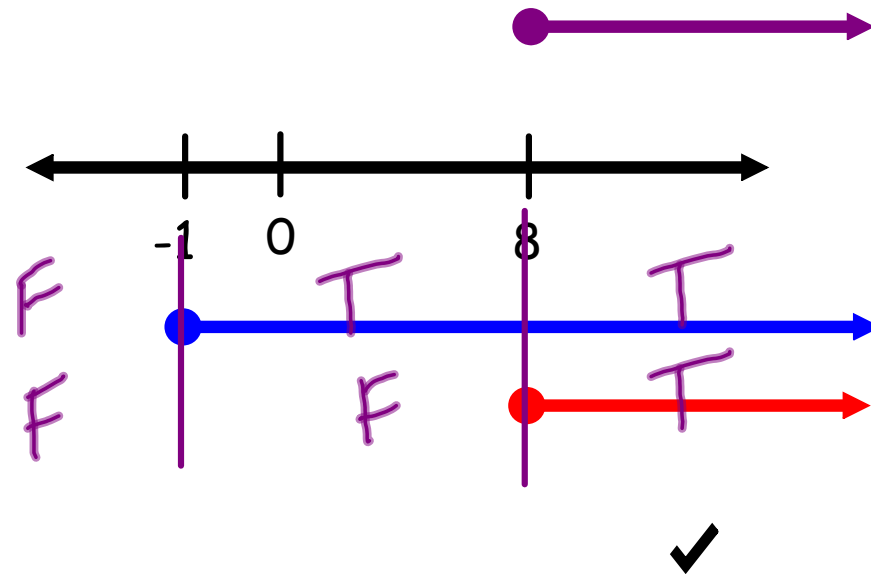


How many T's do we look for in an "AND" statement?

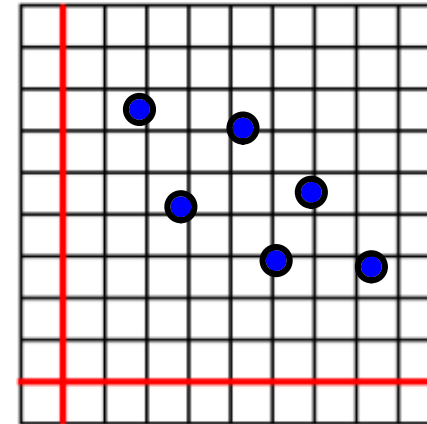
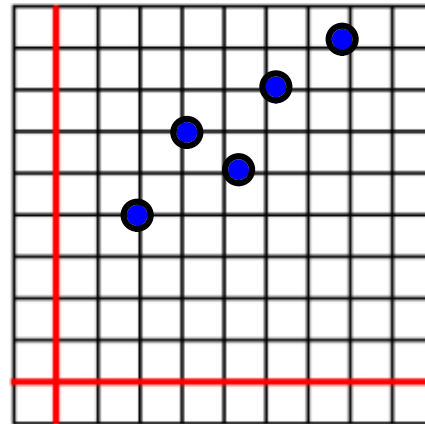
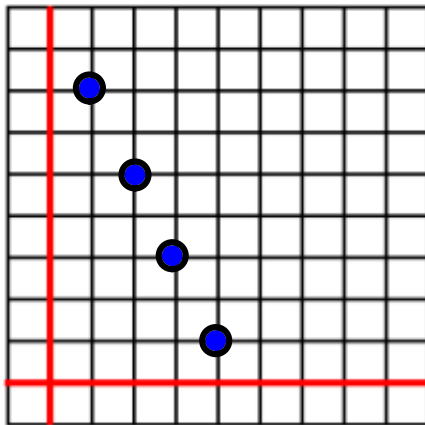


How many T's do we look for in an "AND" statement?

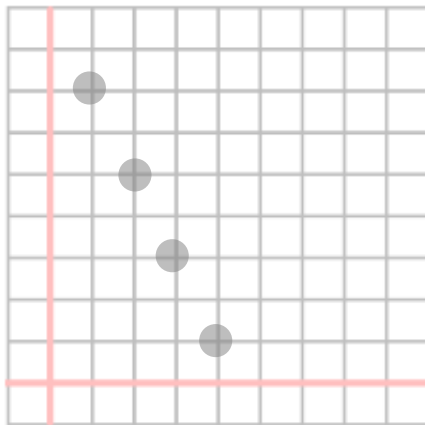
Two



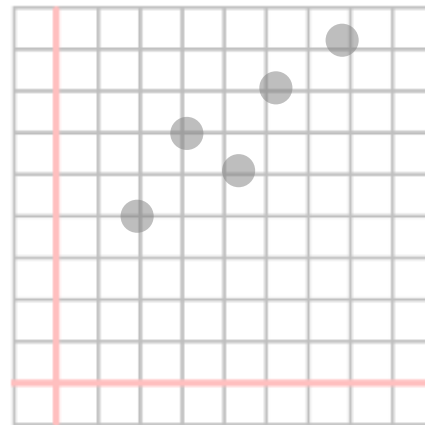
Which of the following best approximates an r value of $-.867$?



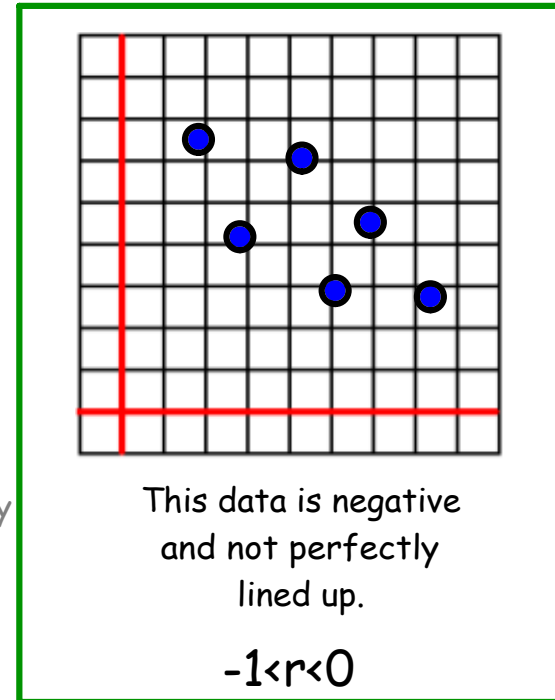
Which of the following best approximates an r value of -0.867 ?



This data is perfectly lined up with a negative slope
 $r = -1$

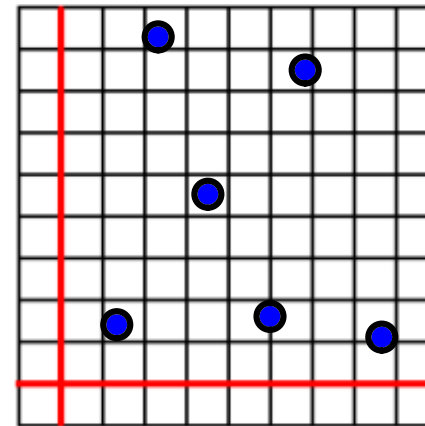
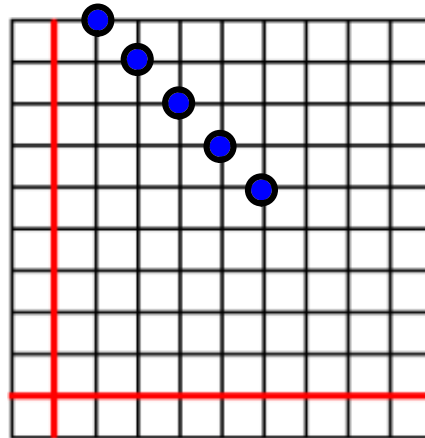
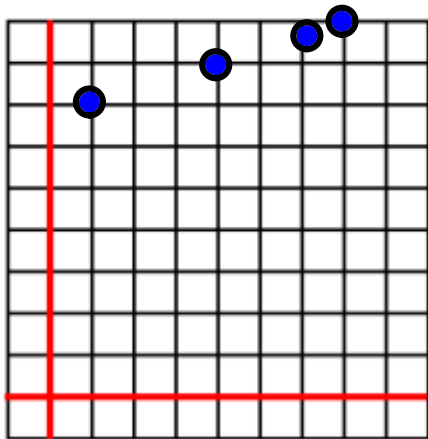


This data is not perfectly lined up and has a positive slope.
 $0 < r < 1$

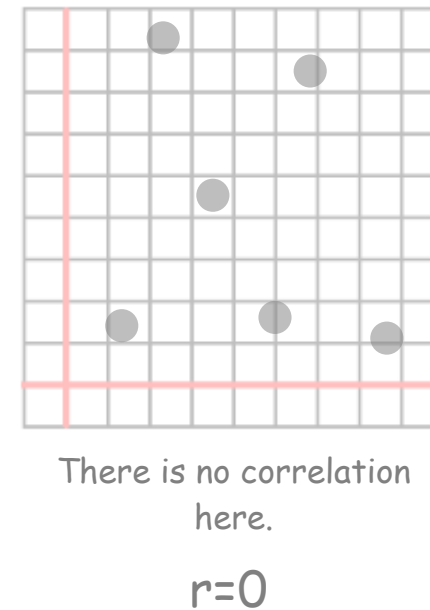
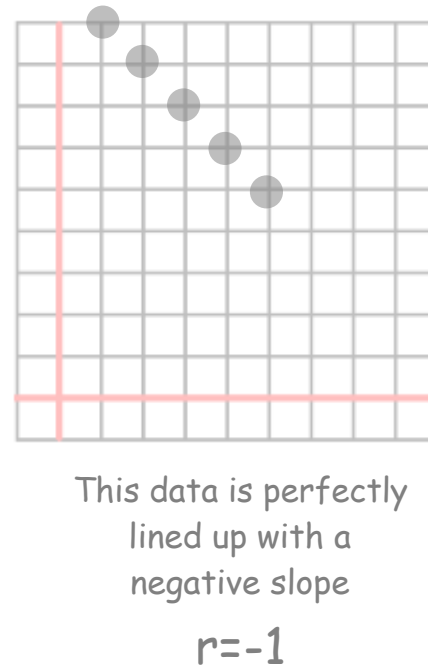
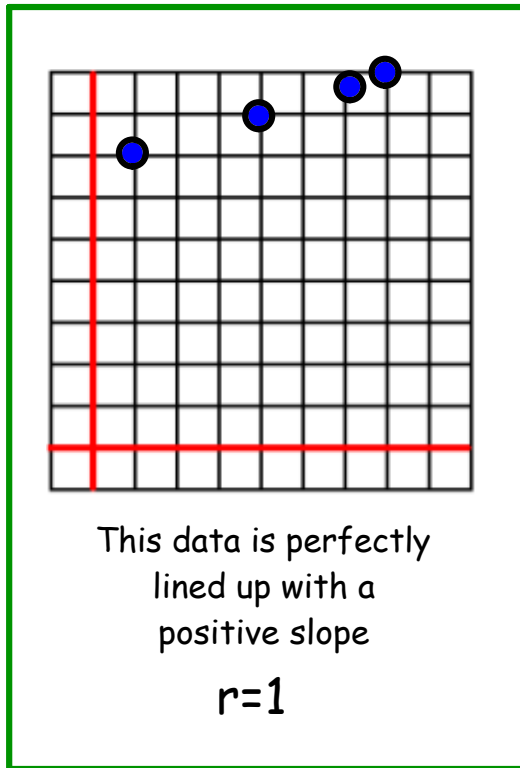


This data is negative and not perfectly lined up.
 $-1 < r < 0$

Which of the following best approximates an r value of 1?



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Which of the following problems will require you to flip the inequality symbol when you solve?

$$-4x > 20$$

$$4x > -20$$

$$4x > 20$$

$$-4x > -20$$

Which of the following problems will require you to flip the inequality symbol when you solve?

$$\frac{-4x}{-4} > \frac{20}{-4}$$

$$\frac{4x}{4} > \frac{-20}{4}$$

$$\frac{4x}{4} > \frac{20}{4}$$

$$\frac{-4x}{-4} > \frac{-20}{-4}$$

Dividing **BY** a negative requires you to FLIP the inequality symbol.

What are the steps for "setting up" absolute value equations and inequalities when you are solving them?

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1. Split the problem in two.

$$|\square| = \#$$

$$\square = \# \quad \& \quad \square = -\#$$

2. In the first one

a. just drop the bars.

$$|\square| < \#$$

$$\square < \# \quad \text{and} \quad \square > -\#$$

3. In the second one:

a. drop the bars

b. flip the symbol

c. make the number negativ

$$|\square| > \#$$

$$\square > \# \quad \text{or} \quad \square < -\#$$

What does the word GOLA have to do
with solving
absolute value inequalities?

What does the word GOLA have to do with solving absolute value inequalities?

Greater than

Or

Less than

And

$$| \square | > \#$$

greater

$$\square > \# \text{ or } \square < -\#$$

When you split the inequality into two statements, you must join the statements with an AND or an OR. GOLA will help you remember which is which.

$$| \square | < \#$$

LESS

$$\square < \# \text{ and } \square > -\#$$

What is the definition of
Absolute Value?

What is the definition of Absolute Value?

The absolute value of a number is the
distance
of that number from zero.

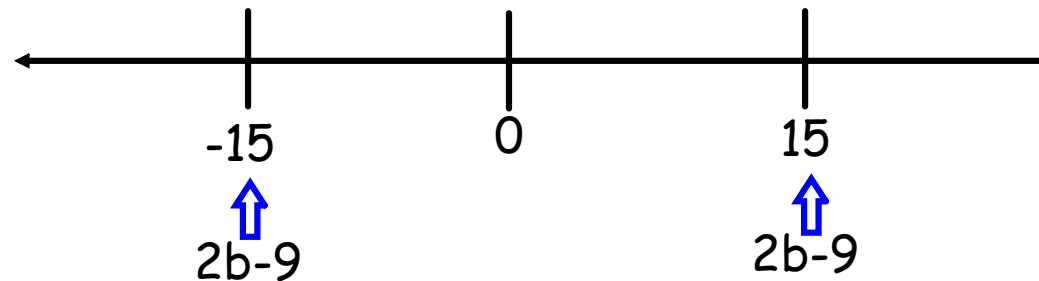
How many solutions for b does the following equation have?

$$|2b - 9| = 15$$

How many solutions for b does the following equation have?

$$|2b-9|=15$$

TWO



Other Recommendations to Get Ready for the Test

1. Memorizing the concept maps on the web site under SMART Board Notes.
2. I would print some worksheets from the SMART Board Notes and practice them as well. Maybe just a few problems from each section on each worksheet. The answers may be posted there as well.
3. Practicing other flashcards from the web site in CHAPTER 1 under SMART Board Notes.