

- 1) $4(x+2) = 4x + 8$ is an example of the distributive property. The 2 in front of the parenthesis is being distributed in the parenthesis. Here is the general rule for the Distributive Property: $a(b + c) = ab + bc$ **ANSWER: (1)**

- 2) You are being asked to solve for p in the following equation:

$$\begin{array}{ll} 2(3p - 4) = 10 & \text{Use the distributive property you just saw used in problem 1.} \\ 6p - 8 = 10 & \text{Add 8 to both sides.} \\ 6p = 18 & \text{Divide both sides by 6.} \\ \mathbf{p = 3} & \end{array}$$

ANSWER: (3)

- 3) You can set up a proportion using the ratio of $\frac{\text{height}}{\text{shadow}}$. In other words:

$$\frac{\text{Jordan's height}}{\text{Jordan's shadow}} = \frac{\text{Missy's height}}{\text{Missy's shadow}}$$

Use the actual values (Let x = Missy's height):

$$\begin{array}{ll} \frac{6}{54} = \frac{x}{45} & \text{Cross multiply.} \\ 54x = 6(45) & \text{Multiply.} \\ 54x = 270 & \text{Divide both sides by 54.} \\ \mathbf{x = 5} & \end{array}$$

ANSWER: (3)

- 4) The probability of an event happening plus the probability of the event not happening will always equal 1. Therefore, here is one way of figuring out the probability of NOT rolling a 5 on a single toss of a cube.

$$P(5) = \frac{1}{6} \text{ This simply means that the probability of YES rolling a 5 is one-sixth as there}$$

are 6 sides to a cube and only one of them will be numbered with a 5. Now $1 - \frac{1}{6} = \frac{5}{6}$

There is therefore a $\frac{5}{6}$ probability that you will not be rolling a 5.

ANSWER: (2)

- 5) You are asked for the product of $10x^4y^2$ and $3xy^3$.
First multiply your numerical coefficients $10(3)$ and you get **30**.
Next multiply x^4 by x and you end up with x^5 .
Finally multiply y^2 by y^3 and you end up with y^5 .
Your final answer is therefore, **$30x^5y^5$** .

The general rule for multiplying with powers is that you ADD the exponents:

$$\mathbf{x^a (x^b) = x^{a+b} \quad \text{Also } x \text{ is really } x^1}$$

When raising a power to a power (nothing to do with this problem), you do actually multiply.

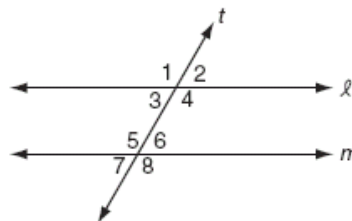
$$\mathbf{(x^a)^b = x^{ab}}$$

ANSWER: (3)

- 6) Let x = number of dimes Sal has.
 $x+3$ = number of quarters
 $x-5$ = number of nickels
 He has a total of 52 coins. Set up your equation and solve for x .
- | | |
|--------------------------|---|
| $x + (x+3) + (x-5) = 52$ | Simply drop the parenthesis, and combine like terms. |
| $3x - 2 = 52$ | Add 2 to both sides. |
| $3x = 54$ | Divide both sides by 3. |
| $x = 18$ | The problem is asking for the number of dimes. As x |
- represents your number of dimes, you now have your answer. **ANSWER: (2)**
- 7) When writing numbers in scientific notation, the first part has to consist of a number greater than or equal to 1 but less than 10, which is then multiplied by 10 raised to a power. You are asked to represent **0.00003937** in scientific notation. The first part has to be at least 1 and less than 10, so it cannot be .3937. It therefore has to be **3.937**. Now this has to be multiplied by 10 raised to some power. When we raise 10 to a positive power, we are moving the decimal point that number of spaces to the right. In this case, we want the decimal point to move 5 spaces to the left from between the 3 and 9 where we have just placed it. Here is your answer: **3.937×10^{-5}** What will happen now is that the decimal will move one place to the left and end up in front of the 3, and then it will move 4 more spaces to the left which we will have to fill with 0's. The number will then be: **.00003937**
ANSWER: (1)
- 8) You are presented with the high temperature for a 5-day period. Here are the temperatures in degrees:
- | | | | | |
|---------|---------|---------|-----------|---------|
| Mon. 15 | Tue. 25 | Wed. 20 | Thurs. 20 | Fri. 30 |
|---------|---------|---------|-----------|---------|
- You are also presented with four choices and asked which one best describes this data. Two of the choices involve the median. In order to find the median, data first has to be ordered. So let us put the temperatures in order: 15, 20, 20, 25, 30.
- Let us first find the mean. The mean is the average. Add up all the scores and divide by 5 as there are 5 scores. The sum of the scores is 110. Divide that by 5 and you obtain a **mean of 22**.
- Now let's find the median. The median is simply the middle score. In our case, 20 is the middle score. There are two score to the right of it and two scores to the left of it. So the **median is 20**.
- Finally, find the mode. The mode is the score that appears most often. There are two 20's. The **mode is 20**.
- Choice 2 is the answer--the median and mode are equal.** **ANSWER: (1)**
- 9) You are given the rule of translation: $(x-3, y+2)$
 This means that your x is shifted -3 (subtract 3 from your x), and your y is shifted +2 (add two to your y). The point being translated is **(-3,4)**
 -3 is your x . Shift it -3 and you get -3-3 which equals your new x -value of **-6**.
 4 is your y . Shift it +2 and you get 4 + 2 which equals **6**.
 The image of $(-3,4)$ under the translation $(x-3, y+2)$ will be: **(-6,6)** **ANSWER: (4)**

- 10) A fraction is undefined when its denominator equals 0, because division by 0 is undefined. Given the fraction $\frac{3}{x-2}$, set the denominator equal to 0. When will $x-2$ equal 0? When $x = 2$. The given fraction is therefore undefined when $x = 2$. **ANSWER: (2)**
- 11) Of the given transformations, the only one that does not preserve distance, which means it will be smaller or larger than the original figure, is a dilation. In other words, a dilation will result in an image that will only be similar but not congruent. **ANSWER: (1)**
- 12) Using the order of operations would require you to first simplify the parenthesis so that you can square the result obtained. The parenthesis consists of addition, subtraction, and multiplication. Of those three, multiplication is completed first. **ANSWER: (4)**

- 13) You are shown a diagram of two parallel lines cut by a transversal. In every such case certain angles will be congruent, while others will be supplementary adding up to 180 degrees.



Choice 1 names a relationship between angles 1 and 4 that is not true. Angles 1 and 4 are congruent since they are vertical angles.

Choice 2 is also incorrect as angles 1 and 8 will also be congruent. Angles 1 and 5 are congruent (corresponding angles). Angles 5 and 8 are vertical angles and therefore congruent. This means that angles 1 and 8 are therefore congruent as well.

Choice 3 is also incorrect. Angles 3 and 6 happen to be alternate interior angles and are therefore congruent.

Choice 4 is correct. Angles 2 and 5 are supplementary and their measure do add up to 180 degrees. Angle 3 and 2 are vertical and therefore congruent. Angle 3 and 5 are supplementary. They are interior angle on the same side of the transversal. Therefore, angles 2 and 5 are also supplementary.

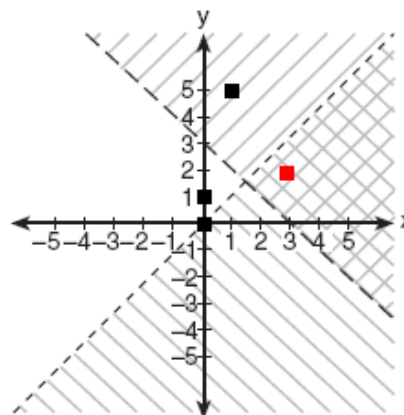
In general, when you are presented with two parallel lines cut by a transversal, you will end up with 8 angles. Four of them will be acute angle (having measures less than 90), and four of them will be obtuse (having measures greater than 90). The acute angles will all be congruent to each other, and the obtuse angles will be congruent to each other. However an acute angle and an obtuse angle will always be supplementary (have measures that add up to 180 degrees). **ANSWER: (4)**

- 14) You are asked to find the sum of $\sqrt{50}$ and $\sqrt{32}$. Only like radicals can be added, so you first have to simplify these radicals.
 $\sqrt{50} = \sqrt{25} \cdot \sqrt{2} = 5\sqrt{2}$ $\sqrt{32} = \sqrt{16} \cdot \sqrt{2} = 4\sqrt{2}$ Now the addition is simple:

$$5\sqrt{2} + 4\sqrt{2} = 9\sqrt{2}$$

ANSWER: (3)

- 15) You are presented with the graph showing the solution set of a system of inequalities. Of the 4 choices given, only one lies in the solution set. The solution set of an inequality is shown by shading in either an upward or downward direction. The solution set to a system of inequalities will always lie in the crisscrossed part, as that section will contain both inequalities. The red point you see to the right represents the point (3,2) and is the answer. The point (0,0) is not in the solution set of either inequality as it is on the inequality represented by a dotted line. Any point on that dotted line will not be part of the solution set for that inequality. Only points to the right and below that dotted line will be parts of its solution set. The point (0,1) is also not part of any solution set as it is not part of any shaded area. The point (1,5) is in the solution set of one inequality only -- the one represented by the dotted line moving through quadrants III, I, and II. That dotted line represents an inequality whose solution set will be upwards and to the right of that dotted line. Had either line been solid, then points on that particular line would also have been in the solution set.



ANSWER: (4)

- 16) This is a simple question involving permutations. In essence, you are being asked to determine how many different arrangements are possible given 4 objects. The answer is given by ${}_4P_4$, which means the number of permutations of 4 things taken 4 at a time. Another way of representing ${}_4P_4$ is $4!$. This is read as 4 factorial. The answer would be determined by the following calculations: $4(3)(2)(1) = 24$

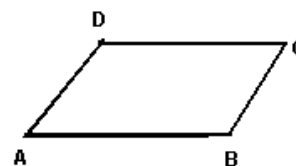
ANSWER: (4)

- 17) Given $x = 4$ and $y = -2$, what is the value of $\frac{1}{2}xy^2$?

$\frac{1}{2}xy^2$	Substitute the values for x and y.
$\frac{1}{2}(4)(-2)^2$	Complete your multiplications.
$(2)(-2)^2$	Square the -2.
$(2)(4)$	Multiply
8	

ANSWER: (2)

- 18) Assuming that the diagram at the right is that of a parallelogram, then angles A and C, as well as angles B and D are considered opposite angles. As such, they are congruent. On the other hand, angles A and B, or B and C, or C and D, are considered consecutive angles. Consecutive angles are supplementary. That is, their measures add up to 180 degrees.



This problem tells you two things. One is that the angles are in a ratio of 5 to 4. This allows you to immediately set up your variables by saying:

Let $5X =$ one consecutive angle

$4X =$ the other consecutive angle.

You know that consecutive angles are supplementary so you can now set up your equation.

$$5X + 4X = 180 \quad \text{Combine like terms.}$$

Problem continues on next page.

$$\begin{aligned}
 9X &= 180 && \text{Divide both sides by 9.} \\
 X &= 20 && \text{Now you can figure out what the 2 angles are.} \\
 5X &= 5(20) = 100^\circ \\
 4X &= 4(20) = 80^\circ
 \end{aligned}$$

You are being asked for the measure of an obtuse angle. The **answer** is therefore **100°**, as 100° is an obtuse angle. **ANSWER: (3)**

- 19) You are presented with the equation $x + 3y = 6$ and asked to determine the coordinates of its y-intercept. This means, when graphing this equation, what will be the coordinates of the point where the graph intersects the y-axis. Perhaps the easiest way to do this in this case would be to realize that the point where the line will intersect the y-axis will have an x value of 0. So all you have to do now is substitute 0 for x.

$$\begin{aligned}
 x + 3y &= 6 && \text{Substitute 0 for x.} \\
 0 + 3y &= 6 && \text{Add.} \\
 3y &= 6 && \text{Divide both sides by 3.} \\
 y &= 2 && \text{So you know that your x will be 0 and your y will be 2.}
 \end{aligned}$$

The y intercept will therefore be the point (0,2)

Another way of doing this problem is to first transpose it into $y=mx+b$ form.

$$\begin{aligned}
 x + 3y &= 6 && \text{Subtract x from both sides.} \\
 3y &= -x + 6 && \text{Divide both sides by 3.} \\
 y &= -\frac{1}{3}x + 2 && \text{It is now in } y=mx+b \text{ form.}
 \end{aligned}$$

m represents the slope, b represents the y-intercept

So you now know that the slope is $-\frac{1}{3}$, while the y-intercept is 2, making the its coordinates (0,2) as in the first method. **ANSWER: (1)**

- 20) You are asked to solve for w.

$$\begin{aligned}
 \frac{3}{4}w + 8 &= \frac{1}{3}w - 7 && \text{Multiply each term by the common denominator of 12.} \\
 (12)\frac{3}{4}w + (12)8 &= (12)\frac{1}{3}w - (12)7 && \text{Complete multiplications, canceling denominators.} \\
 (3)3w + 96 &= 4w - 84 && \text{Continue multiplying.} \\
 9w + 96 &= 4w - 84 && \text{Subtract 4w from both sides.} \\
 5w + 96 &= -84 && \text{Subtract 96 from both sides.} \\
 5w &= -180 && \text{Divide both sides by 5.} \\
 w &= -36
 \end{aligned}$$

ANSWER: (4)

- 21) $*-0.12*$ means the absolute value of -0.12 which is .12
 Now use your calculator to convert the remaining numbers into decimals.
 You can now easily order them from smallest to largest. (Don't forget the .12).

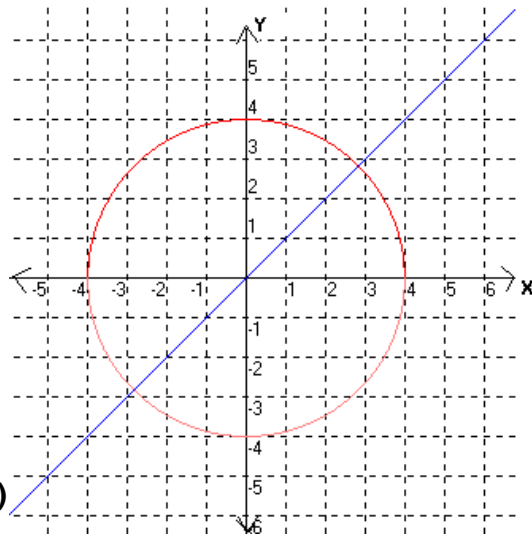
They are: $\sqrt{\frac{1}{82}}$, $\frac{1}{9}$, $*-0.12*$, $\frac{1}{8}$

ANSWER: (4)

$\sqrt{(1/82)}$.1104315261
$1/8$.125
$1/9$.1111111111

- 22) The given equation is easily factored and solved. $x^2 + 3x - 18 = 0$
 You are told that one root is 3, so if $x=3$, then one factor will be $x - 3$.
 So you now know the following $(x-3)(x ?)$ will equal the given equation.
 The quadratic equation is in the form $ax^2 + bx + c = 0$
 When using FOIL, the c term which equals -18 in our equation, will be product of the "lasts," Looking above you see that the "lasts" are -3 and a question mark. The question mark has to equal $+6$, as $(-3)(6) = -18$. You therefore now know that the two factors are $(x-3)$ and $(x+6)$. Set the second factor equal to 0 and solve for x :
 $x+6 = 0$ $x = -6$ **ANSWER: (3)**
- 23) When adding or subtracting like terms the variables do not change. Only the numerical coefficients change.. Therefore, $2x^2 - 1x^2$ would simply be $1x^2$.or x^2 And that is your answer to this problem as x^2 and $1x^2$ are synonymous. **ANSWER: (3)**
- 24) To find the coordinates of a midpoint when given two endpoints, simply add together the two x -coordinates and divide by 2 to obtain your x -coordinate of the midpoint. Then add together the two y -coordinates and divide by 2 to obtain your y -coordinate of the midpoint. The coordinates of the endpoints given are $(-9,2)$ and $(3,14)$.
 $-9+3=-6$, divided by 2 = -3 -3 is your x -coordinate.
 $2+14 =16$, divided by 2 = 8 8 is your y -coordinate.
 The coordinate of the midpoint is $(-3,8)$ **ANSWER: (1)**

- 25) You are required to know that $x^2 + y^2 = r^2$ is the equation that represents a circle of radius r , with a center of $(0,0)$. You are given the equation $x^2 + y^2 = 16$ which is really the same as $x^2 + y^2 = 4^2$. You know that it is a circle whose center is $(0,0)$, which has a radius of 4. You see that circle at the right in red. The other equation, $y=x$, is a straight line whose x and y -coordinates will always equal each other as $(-2,-2)$, $(1,1)$, $(4,4)$, and so on. You see it in blue at the right. It is a diagonal line with a positive slope of 1 that runs through the origin $(0,0)$. It is obvious that **they intersect at two points.**



ANSWER: (2)

- 26) Question #16 dealt with permutations. This one deals with combinations. You have 9 divers and wish to select a team of 4. The question is how many teams of 4 can be selected from this group of 9. To solve this one you have to know the answer to 9C_4 , which is the number of 9 things taken 4 at a time. You can use your calculator to obtain the answer of 126, or you can do it as follows.

$${}^9C_4 = \frac{9!}{4!} = \frac{9(8)(7)(6)}{4(3)(2)(1)} = \frac{3024}{24} = 126$$

ANSWER: (2)

- 27) The page numbers of two pages facing each other will be consecutive integers. As such, one page can be represented as x and the other as $x+1$. You are told that their product is 156. The product is the answer to a multiplication problem. The answer to this question therefore is **choice 4: $x(x+1)=156$**

ANSWER: (4)

- 28) You are told that the point $(k, -3)$ lies on the line whose equation is $x - 2y = -2$. You are asked to solve for k . Your x -coordinate is represented by k , and your y term is represented by -3 since that is the y -coordinate.

Substitute k for x , and -3 for y , and solve.

$$x - 2y = -2 \quad \text{Substitute } k \text{ for } x, \text{ and } -3 \text{ for } y.$$

$$k - 2(-3) = -2 \quad \text{Multiply}$$

$$k + 6 = -2 \quad \text{Subtract 6 from both sides.}$$

$$k = -8$$

ANSWER: (1)

- 29) Given the conditional $P \rightarrow Q$, which is read as "if P then Q ", one can construct the inverse, converse, and contrapositive.

Inverse: $\sim P \rightarrow \sim Q$ If not P then not Q

Converse: $Q \rightarrow P$ If Q then P

Contrapositive: $\sim Q \rightarrow \sim P$ If not Q then not P

Of the 3 above, only the contrapositive is logically equivalent. Logically equivalent means it will always have the same truth value as the original statement. One way the contrapositive can be found is by taking the converse of the inverse.

Let $W \rightarrow C$ mean If Corey worked last summer, then he buys a car.

The inverse would be: $\sim W \rightarrow \sim C$, and the converse of that inverse would be: $\sim C \rightarrow \sim W$.

Translated into English it would be: **If Corey does not buy a car, then he did not work last summer.**

ANSWER: (1)

- 30) Perpendicular lines have slopes that are negative reciprocals. Two numbers are negative reciprocals if their product equals -1 . For example $2/3$ and $-3/2$ are negative reciprocals. The first step in this problem is to determine the slope of the given equation. As in #19, let us transpose the equation into the slope-intercept form of a line: $y=mx+b$, where m represents the slope and b represents the y -intercept

$$5y + 6 = -3x \quad \text{Subtract 6 from both sides.}$$

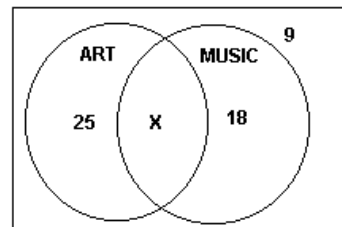
$$5y = -3x - 6 \quad \text{Divide both sides by 5.}$$

$$y = -\frac{3}{5}x - \frac{6}{5} \quad m = -\frac{3}{5} \quad b = -\frac{6}{5}$$

You now know that the slope of your given line is $-\frac{3}{5}$, and its y -intercept is $-\frac{6}{5}$

As stated earlier, we are interested in the slope. We need a slope that will be the negative reciprocal of $-\frac{3}{5}$. The slope that fulfills that requirement is a slope of $\frac{5}{3}$. Also as mentioned earlier, your slope is in the m position when the equation is in the form of $y = mx + b$. Look at choice 2. It is the only equation that has $\frac{5}{3}$ in the m position. It is therefore the equation whose graph would be perpendicular to the original line. **ANSWER: (2)**

- 31) There are a total of 60 students. Of these 60 students, 25 take art only, and 18 take music only. You have now accounted for a total of 25 + 18 or 43 students. You are also told that 9 take neither art or music. You have now accounted for a total of 43 + 9 or 52 students out of a population of 60. 8 students remain unaccounted for. They are the ones taking both art and music. Using the Venn diagram at the right you can set up the following.



$$25 + 18 + 9 + x = 60 \quad \text{Combine}$$

$$52 + x = 60 \quad \text{Subtract 52 from both sides.}$$

$$x = 8 \quad \text{These are the number of students who participate in both.}$$

ANSWER: 8 students take both art and music

- 32) Set up a proportion of miles to hours:

$$\frac{15}{2\frac{1}{2}} = \frac{2}{x} \quad \text{Cross multiply.}$$

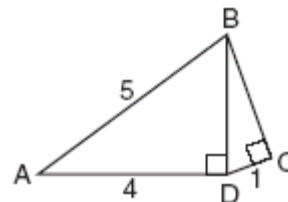
$$15x = 5 \quad \text{Divide both sides by 15}$$

$$x = \frac{5}{15} = \frac{1}{3} \quad \text{x equals 1/3 of an hour. The problem asks how many minutes? One$$

hour is 60 minutes. One third of an hour is $\frac{1}{3}(60)$ or **20 minutes**.

ANSWER: It will take her 20 minutes to run 2 1/2 miles.

- 33) You are presented with the diagram at the right. What should immediately be apparent is that the length of BD is 3. Triangle ABD is your classic 3,4,5 right triangle. You can determine the length of side BD by using the Pythagorean Theorem $a^2 + b^2 = c^2$. Angle C is shown to be a right angle. The side opposite the right angle in a triangle is named the hypotenuse. The other two sides are simply called the legs of the triangle. (Actually one could be called the base and the other the altitude). Now, using the Pythagorean Theorem on triangle BCD will give us the measure of side BC. The Pythagorean Theorem states that the sums of the squares of the two legs of a triangle will be equal to the hypotenuse squared. So now you can set up your equation.



The problem continues on the next page.

In triangle BCD, \overline{BC} and \overline{DC} are the legs, and \overline{BD} is the hypotenuse.

$$(\text{leg})^2 + (\text{leg})^2 = (\text{hypotenuse})^2$$

$$(\overline{BC})^2 + (\overline{DC})^2 = (\overline{BD})^2$$

$$(\overline{BC})^2 + (1)^2 = (3)^2$$

$$(\overline{BC})^2 + 1 = 9$$

$$(\overline{BC})^2 = 8$$

$$\overline{BC} = \sqrt{8}$$

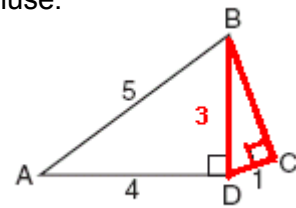
$$\sqrt{8} = 2.8284$$

Subtract 1 from both sides.

Find square root of both sides.

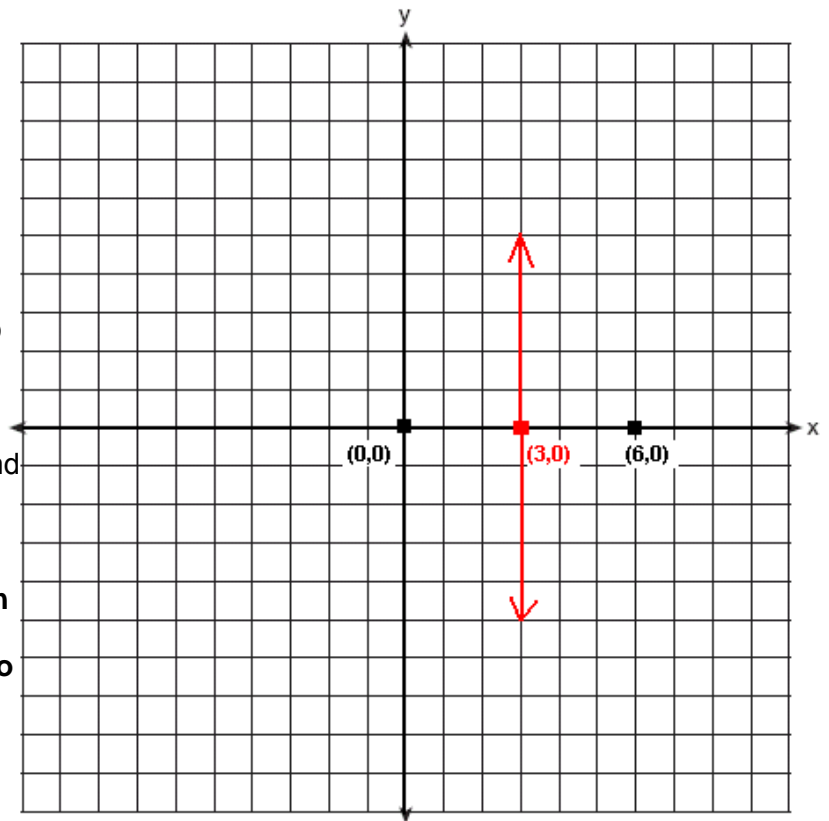
Use your calculator to determine BC to nearest tenth.

To the nearest tenth it is **2.8**



ANSWER: \overline{BC} to the nearest tenth is 2.8

- 34) At the right you see the coordinate axis with points already entered. In black you see the points you are given-- (0,0), and (6,0). Your first task is to graph the locus of points that are equidistant from these two points. The point you see in red, (3,0), is the midpoint of the line segment defined by the two given points that you see in black. It is midway between these two points. The red vertical line you see going through that point (3,0), is the perpendicular bisector of the line segment whose endpoints are (0,0) and (6,0). Since it is vertical, its x-coordinate does not change. Its equation is therefore **x=3**



ANSWER: See graph. The equation of the locus of points equidistant from the points representing the two houses is $x = 3$.

- 35) This problem will require you to change a fraction to a percent. First add up the total hours: $141,288 + 85,725 + 81,681 + 9,945 + 1,662 + 363,447 = 683,748$ total hours.

Sleeping hours = 141,288 You now want to know what percent of the total is sleeping.

$$\frac{\text{sleeping}}{\text{total}} = \frac{141288}{683748} = .20663$$

To change a decimal to a percent, move the decimal point 2 places to the right 20.663%. To the nearest tenth it is **20.7%**

ANSWER: 20.7% of the time is spent sleeping.

- 36) This is a simple problem involving the counting principle. The counting principle states that if one event can happen in any one of m ways, and another event can happen in any one of n ways, then both events can happen in $m(n)$ ways. An example would be if you know that to get from NY to NJ you first have a choice of 2 trains you can take, and then you can take anyone of 3 buses to complete your trip. How many different ways are there of getting from NY to NJ? The answer is $2(3)$ or 6.

Similarly, at first glance, to get your answer for the question asked here, you simply multiply to get the product of the number of choices.

$5 \cdot 3 \cdot 7 \cdot 6 \cdot 4 = 2,520$ **BUT WAIT!!!** The problem does not say one appetizer AND one soup. It says one appetizer **OR** one soup. That is a total of 8 choices. So in reality these should be the numbers you multiply: $8 \cdot 7 \cdot 6 \cdot 4 = 1,344$

ANSWER: There are a total of 1,344 such meals possible.

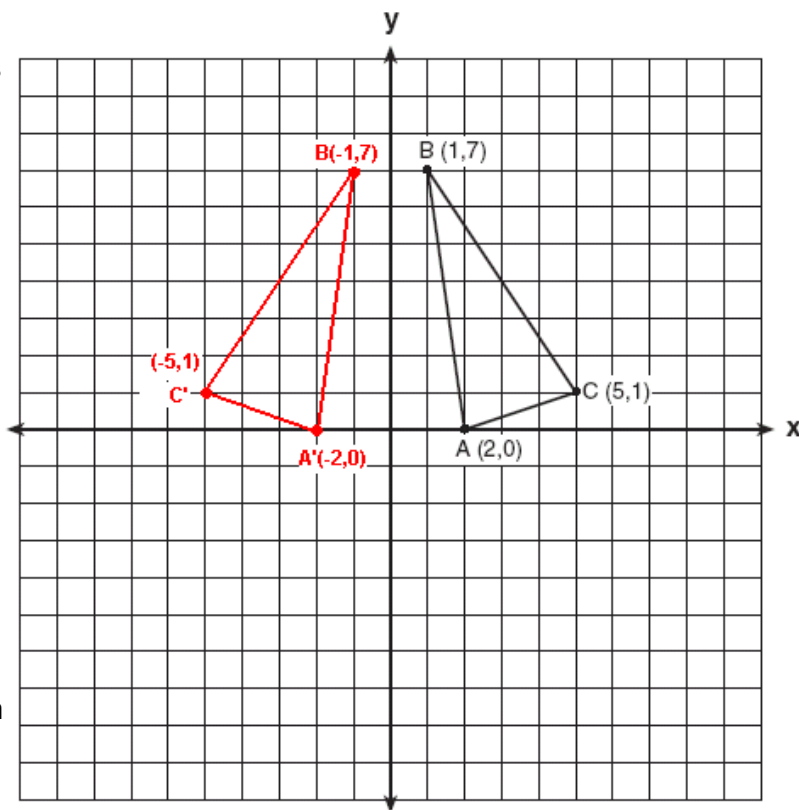
- 37) At the right are your coordinate axes with triangle ABC and its vertices marked in black. You are asked to graph, label and state the coordinates of triangle A'B'C', the image of triangle ABC after a reflection in the y-axis.

Here is how to reflect a point in the y-axis. Let's start with A(2,1). Move from point A, left, until the y-axis. You have traveled 2 units. Now continue for another 2 units and you have reached the point that is its reflection in the y-axis. You do the same with the other points. For example, using point C, move to the left until the y-axis. You have moved a total of 5 units. Continue moving from the y-axis for another 5 units and that will be the point of reflection in the y-axis.

Actually once you have determined one point of reflection, you can usually generalize a rule for that particular reflection. In our case you see that for a reflection in the y-axis.

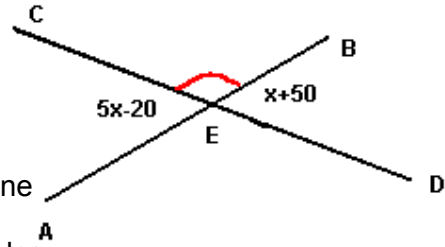
$C(5,1) \rightarrow C'(-5,1)$ or any point $P(x,y) \rightarrow P'(-x,y)$

The above tells you that you no longer have to count units. You simply change the sign of the x-coordinate and keep the same y-coordinate.



38) At the right is a diagram of the given information.

You are asked for the measure of angle CEB which is the angle marked in red. The two angles given are vertical angles. As such they are congruent. You can now set up an equation to solve for x. Once you know what x is, you can use that value to determine the number of degrees contained in the given angles. The angle marked in red is supplementary to those angles.



$$5x - 20 = x + 50 \quad \text{Subtract } x \text{ from each side.}$$

$$4x - 20 = 50 \quad \text{Add } 20 \text{ to each side.}$$

$$4x = 70 \quad \text{Divide both sides by } 4.$$

$$x = 17.5 \quad \text{You can now substitute for } x \text{ and see that both angles are congruent.}$$

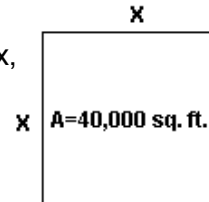
Angle AEC = $5x - 20$	Angle BED = $x + 50$
$5(17.5) - 20$	$17.5 + 50$
Angle AEC = 67.5	Angle BED = 67.5

The angle you are looking for is supplementary to each given angle. This means that the measure of angle CEB + the measure of either given angle = 180 degrees

$$\angle CEB + 67.5 = 180$$

$$180 - 67.5 = 112.5 \quad \text{ANSWER: Angle CEB equals } 112.5 \text{ degrees.}$$

39) Let the diagram at the right represent the yard which is shaped like a square. We don't know the measures of its sides, so I called them both x, as they are equal. However, we do know that the yard has an area of 40,000 square feet.



The area of a square is found by squaring its side. For this square, therefore, you now have:

$$X^2 = 40,000 \quad \text{Find the square root of both sides.}$$

$$X = 200 \quad \text{Each side of the square measures } 200 \text{ ft.}$$

You want to install fencing around the yard. You will need enough fencing for all four sides of the yard: $4(200) = 800$ You will need 800 feet of fencing.

You are being charged \$2.50 per foot. This amounts to $800(\$2.50)$ or \$2,000 for the fencing. In addition, you are being charged \$50 for installation. Your **total cost** will therefore be $\$2,000 + \50 or **\$2,050**.

ANSWER: The total cost of the fence will be \$2,050