

# ParaPro Study Guide

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For additional information about  
the ParaPro Test, sample questions,  
or to order a ParaPro workbook, visit  
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## Answering Multiple Choice Questions

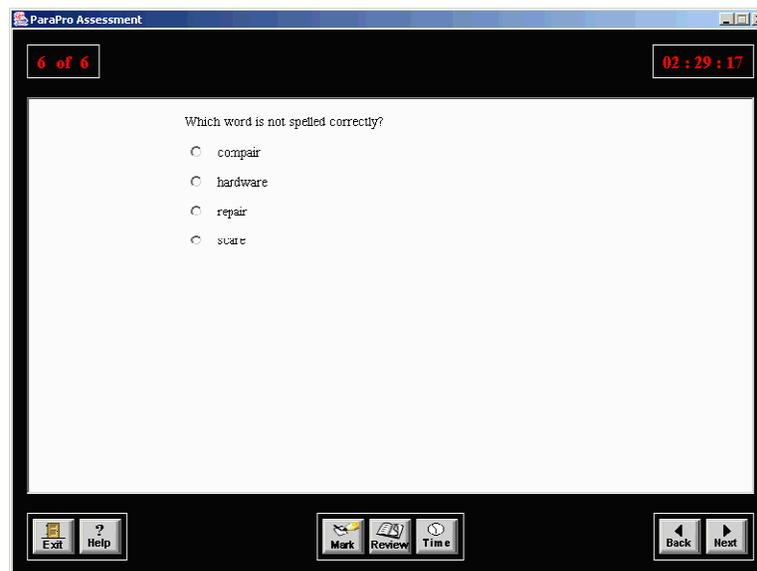
- Read each question and try to answer it without reading any of the answers given. This will focus your attention.
- Use elimination when you do not know the answer for sure. Then guess.
- When the answers are numbers, the middle ranges are more likely to be true.
- Choose answers that are longer and more descriptive.
- When two of the answers are very similar, one of them is likely to be the correct answer.
- Watch out for negative words in the instructions or in the main question.

## When the Test Begins

- Read the directions very carefully. Watch for details.
- Do easy questions first. Then go back to the hard ones.
- Keep a steady pace. Don't worry too much over hard questions.
- Rely on your knowledge; don't look for patterns in the answers.
- Change answers only when you are certain. Your first thought is more likely to be correct.
- When finished, review your test. Did you skip any questions? Are there more questions on the back of the page?

## The Computer-Based Test

Here is an example of the screen that you will see when taking the test:



The upper left corner shows the question number that you are working on. (There are 90 questions on the computer-based test.)

The upper right corner tells you how much time is left. If you don't wish to see the time counting down, you may click the 'Time' button at the bottom of the screen. This will hide the clock until the last ten minutes of the test. After that, it can no longer be hidden.

To answer a question, click the circle next to your choice. To change your answer, click on another circle.

To go to the next question, click the 'Next' button at the bottom right corner of the screen.

To return to the previous question, click the 'Back' button.

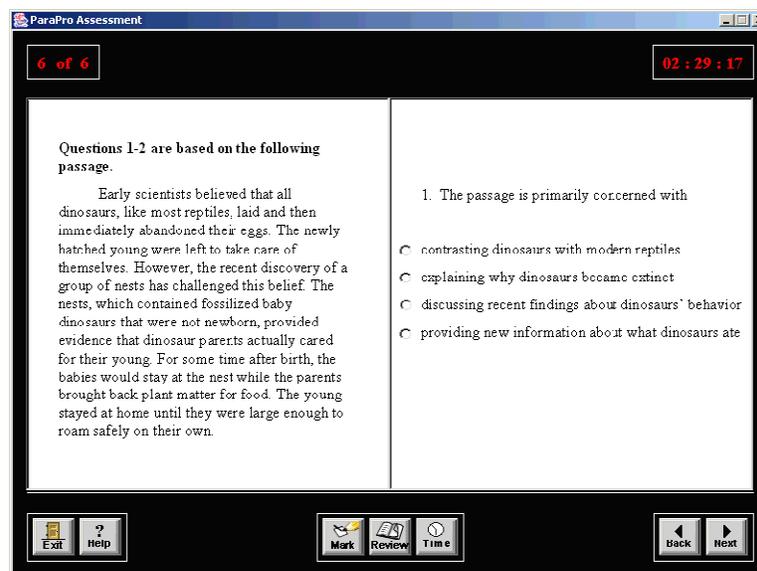
If you're not certain about the answer to a question, or if you would like to skip a question and come back to it later, click the 'Mark' button at the bottom of the screen. The word "Marked" will appear at the top of the screen in between the question number and the clock.

When you're finished with the test, click the 'Review' button at the bottom of the screen. This will take you to a different screen that lists all the questions and shows whether the question has been answered and if it has been marked. To return to a marked question, click anywhere in the line to highlight it, and then click the 'Go to question \_\_\_' button at the bottom of the screen.

When you have finished the test, click the 'Exit' button.

## Reading and Writing Sections

These two sections have some questions that need a lot of space to display. The screen will be divided and will look like the picture below:



In these types of questions, the reading material will be on the left side of the screen and the question and its answers will be on the right. More than one question may be based on the same passage. When you click 'Next', the passage will be presented again along with the next question. Some passages (and some of the questions) may be too long to fit on the screen. If this is the case, there will be a scroll bar so that you can click down to see the rest of the passage or question.

### **Main Idea Questions**

- The author is primarily concerned with ...
- Which title best summarizes the content?

### **Specific Idea Questions**

- Which of the following is stated in the passage?
- Which of the following points does the author make?

### **Inference Questions**

- The author implies that ...
- It can be inferred that ...

### **Evaluation Questions**

- The author would most likely agree with which statement?
- Which topic do you think the author will focus on next?

### **Attitude/Tone Questions**

- What is the tone of the selection?
- How would you describe the author's attitude toward ...

### **Parts of a Word**

Prefix – is added to the beginning of a base word to change the meaning of the word. Think of the following words with prefixes:

RE + Discover – Rediscover

UN + Official – Unofficial

MIS + Judge – Misjudge

TRANS + Port – Transport

Suffix – is added to the end of a base word that changes the meaning of the word. Think of the following words with suffixes:

Cheer + FUL – Cheerful

Color + LESS – Colorless

Counsel + OR – Counselor (Counsel is a verb, but with the suffix, becomes a noun)

Root – is the word or base to which the prefix or suffix is added. Many of these words come from the Latin or Greek (as do the prefixes and suffixes).

### **When Reading Critically**

- Search for biases and hidden assumptions
- Separate emotion from fact
- Look up the facts if the issue is new to you
- Use insights from one subject to illuminate or correct another
- Evaluate the evidence after applying the above strategies
- Ponder the values/reasons that give an argument its impetus or strength

### **Some Grammar Rules**

#### **Complete Sentences**

- Capitalize the first word of a sentence.
- End the sentence with a period, exclamation point, or a question mark
- Include a subject (a person, place, or thing; or, a 'who', 'where', or 'what') and a verb (a word showing action or linking the first part of the sentence to the last part).

#### **Correcting Run-On Sentences**

- Separate the words into shorter sentences and punctuate with a period at the end of each sentence.
- Separate the parts of the long sentence with a semi-colon.
- Separate the parts of the long sentence with a comma and a connecting work (e.g., *and*, *but*, *or*, *not*, *for*, *so*, *yet*).

#### **Checking Personal Pronouns**

A noun is a word for a person, place, or thing. In the following sentence, the three nouns are underlined:

John went to the store to buy some corn.

A pronoun is a word that stands for a noun or another pronoun. Pronouns can replace each of the nouns in the sentence above:

He went there to get it.

There are several kinds of pronouns, but personal pronouns (I, you, he, she, it, we, they) give writers the most trouble. A pronoun must agree with the noun or pronoun it stands for in the sentence. Here are some common errors:

WRONG: Everyone must turn in their book reports today.

RIGHT: Everyone must turn in **his or her** book reports today.

Everyone is singular. Their is plural. You must replace *their* with *his* or *her*.

WRONG: The data shows an increase, but it is incomplete.

RIGHT: The data shows an increase, but **they are** incomplete.

Data is plural (the singular is datum). You must replace *it* with *they*.

WRONG: Harry went to the playground with Susan and I.

RIGHT: Harry went to the playground with Susan and **me**.

You often find people using I incorrectly because they were so often reminded to use I as the subject of a sentence when they were children. In the sentence above, the word **with** indicates that what follows is an object of the sentence, not the subject. Object pronouns are: me him, her, us, and them.

Whenever you see something like this on a test, mentally remove the other person and it will usually become clear. Using the above example, you would never say Harry went to the playground with *I*.

Taking Susan out of the sentence makes it obvious that the correct pronoun is **me**.

### Checking Verb Tenses

Read over anything you write to make sure you do not shift verb tenses. If you begin a sentence in the present tense, stick to the present. If you begin a sentence using the past tense, make sure all the other verbs use the past tense as well.

WRONG: The chairman **told** the board that the company is making a profit.

RIGHT: The chairman **tells** the board that the company is making a profit. **OR**

The chairman told the board that the company **was** making a profit.

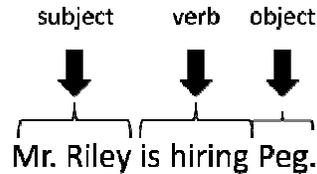
WRONG: Jack's performance was poor at first. Then he **begins** to improve.

RIGHT: Jack's performance was poor at first. Then he **began** to improve.

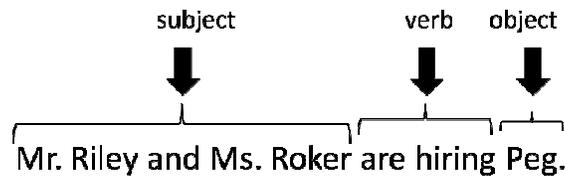
If you begin writing in the present tense, do not shift to the past unless there is a shift in the time reference. Similarly, if you begin in the past tense, don't shift to the present. Different tenses are okay if the time is clearly stated. Consider this example: *Yesterday* was cloudy and rainy, but *today* it is sunny and clear.

### Checking Subject-Verb Agreement

Sentences in English usually follow the subject-verb-object pattern. Consider the following example:



The subject of this sentence, *Mr. Riley*, does the action (hiring). The verb in this sentence, *is hiring*, is the action. The object of the sentence, *Peg*, receives the action. Subjects must agree in number with the verbs in a sentence. Notice how the sentence changes when two people hire Peg:



Some common subject-verb agreement errors are listed below. Subjects are italicized.

WRONG: *One* of the books are missing.

RIGHT: *One* of the books **is** missing.

The subject, *one*, is separated from the verb by the phrase *of the books*, which has a plural noun. But since *one* is singular, you must use *is* instead.

WRONG: The *principal* or the *director* introduce the visitors at the meeting.

RIGHT: The *principal* or the *director* **introduces** the visitors at the meeting.

When **or** joins two subjects, the verb agrees with the nearest subject (in this case, *director*), so the subject is singular, not plural.

WRONG: The *computer* and its *monitor* is not working well.

RIGHT: The *computer* and its *monitor* **are** not working well.

When **and** joins two subjects, the subject is automatically plural.

WRONG: *Planning* projects take time.

RIGHT: *Planning* projects **takes** time.

*Planning* is the subject in this case and *projects* is the object. Since planning is singular, you must use the singular form of the verb.

### Rules for Semicolons

- Semicolons link complete thoughts (i.e., the parts of the sentence linked by the semicolon could be broken into two or more sentences).

Example: The mayor was upset about the proposal; the city administrator was pleased with it.

Example: The county council voted against the amendment; however, most of the town's citizens were in favor of it.

- Semicolons separate items in a series when one or more of the items use a comma.

Example: The winners of the float contest were Piggly Wiggly, first; Park Pharmacy, second; and Famous Pizza, third.

### **When NOT to capitalize**

- Directions (east, west, south, north)
- Seasons (spring, summer, winter, fall)
- General names (mountains, river)

## **Mathematics**

### **Symbology**

- Different ways to represent multiplication:
  - $6 \times 5$
  - $6 \cdot 5$
  - $(6) (5)$
  - $6 (5)$
- Different ways to represent division:
  - $1/2$
  - $1 \div 2$
  - $\frac{1}{2}$
- Other important symbols
  - $<$  Less than
  - $>$  Greater than
  - $\neq$  Not equal to
  - $\geq$  Equal to or greater than
  - $\leq$  Equal to or less than

### **Tips for Solving Word Problems**

There are several things you can do to making math word problems easier. To be successful, you have to make some decisions and use certain strategies.

1. Decide what the question is and what information you will need to solve the problem. Pay close attention to what each of these questions is asking: What time? How many? How much? How far? How old? What length? What is the ratio?
2. Decide which operation (addition, subtraction, multiplication, division) will be needed to solve the problem. When working with word problems, certain words or phrases give clues as to how the problem should be solved. (See the chart below.)

3. Another strategy is to draw a diagram or picture so that you can see how the information in the problem is related. This strategy is very helpful in geometry and measurement problems. Follow these steps:
  - a. Draw the shapes.
  - b. Write the measurements in the correct place. You will be able to see what information is missing and what you can calculate from the information.
  - c. Identify what you are asked to find.
  - d. Think about your answer in relation to the diagram. Check to see if your answer is reasonable.
4. Use mental math. You use mental math every day when you estimate a tip on a restaurant bill or how much of a discount you will receive during a sale. Estimation will get you close to the answer. This technique is particularly useful with fraction, decimal, and percent problems.

OPERATION	Key Words and Examples
Addition	Sum – the sum of 2, 3, and 6 ... Total – the total of the first six payments ... Addition – the recipe calls for the addition of five pints of ... Plus – three liters plus two liters ... Increase – her pay was increased by \$15 ... More than – this week the enrollment was eight more than last week ... Added – if you added \$3 to the cost ...
Subtraction	Difference – what is the difference between ... Fewer – 15 fewer men than women ... Remainder – how many are left, or what quantity remains ... Less than – a number is five less than another number ... Reduced – the budget was reduced by \$5,000 ... Decreased – if he decreases the speed of his car by ten miles an hour ... Minus – some number minus 9 is ...
Multiplication	Product – the product of 8 and 5 is ... Of – one-half of the group ... Times – five times as many girls as boys ... At – the cost of ten yards of material at \$2 a yard is ... Total – if you spend \$15 a week on gas, what is the total cost for a three-week period ... Twice – twice the value of some number ...
Division	Quotient – the final quotient is ... Divided by – some number divided by 12 is ... Divided into – the group was divided into ... Ratio – what is the ratio of ... Half – half the profits are ... (dividing by 2)

## Order of Operations

Remember the mnemonic 'Please excuse my dear Aunt Sally'. Do arithmetic operations in this order: **p**arentheses first, then **e**xponents, **m**ultiplication, **d**ivision, **a**ddition, and **s**ubtraction. If there is more than one set of parentheses, do the innermost ones first. Then simplify any exponents. Finally, do all of the ordinary arithmetic operations in order from left to right. Example:

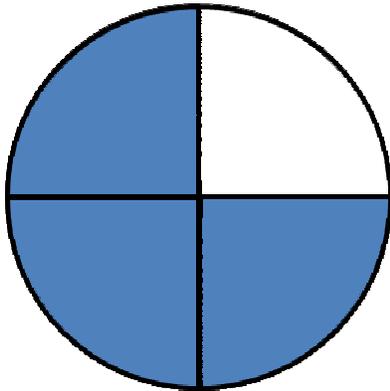
$$(6 - 4)2 \div (8 + (2 + 3)) \times 12 = ?$$

Steps:

- Do the Inner parentheses, resulting in  $(6 - 4)2 \div (8 + 5) \times 12 = ?$
- Do the Outer parentheses, resulting in  $2 \times 2 \div 13 \times 12 = ?$
- Do the Multiplication left to right, resulting in  $4 \div 13 \times 12 = ?$
- Do the Division left to right, resulting in  $0.31 \times 12 = ?$
- Do the Multiplication left to right, resulting in  $= 3.69$

## Fractions

$\frac{3}{4}$  Numerator  
Denominator



The 3 tells what **part** of the figure is shaded. The 4 tells you that the **whole** figure is divided into four equal parts.

## Converting Decimals to Percents

Move the decimal point two places to the right. If there are no numbers remaining to the right of the decimal point, drop it. Add the percent symbol.

Examples:

Decimal            Move  $\rightarrow$  2 places            %

0.35	35.	35%
0.8	80.	80%
0.04	04.	4%
0.123	12.3	12.3%
0.0008	00.08	.08%

### Converting Percents to Decimals

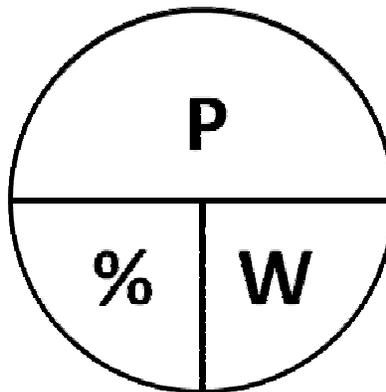
Change the percent sign to a decimal point, then move it two places to the left.

Examples:

%	Move ← 2 places	Decimal
25%	.25	0.25
3%	.03	0.03
.5%	.005	0.005

### Solving Percent Problems with the Percent Circle Diagram

All percent problems are solved by either multiplication or division. Use the diagram below to solve any percent problem. Cover the section of the diagram that holds the requested form of the answer and the uncovered part will show how to calculate the answer. Imagine that the horizontal line is a division symbol and that the vertical line is a multiplication symbol.

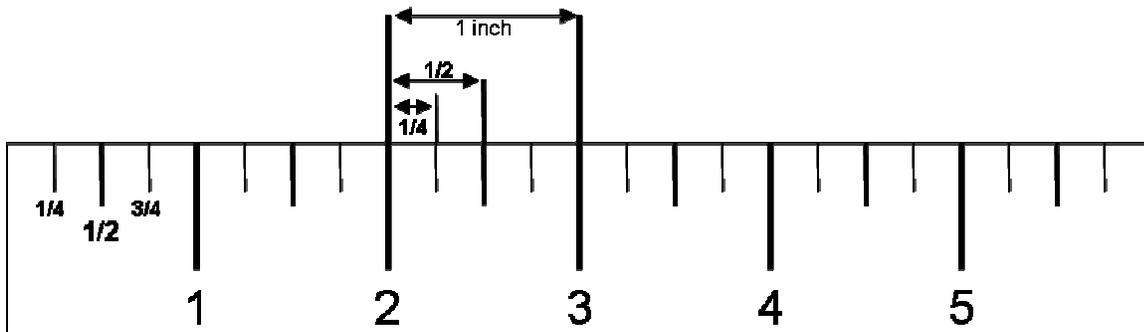


- To find the part, cover the **P** and multiply the **percent** times the **whole**
  - What number is 20% of 80?
  - Multiply 0.2 times 80, which is 16
- To find the percent, cover the **%** and divide the **whole** into the **part**
  - 9 is what percent of 27?
  - Divide 27 into 9, which is .3333, or 33.33%
- To find the whole, cover the **W** and divide the **percent** into the **part**
  - 30 is 40% of what number?
  - Divide 0.40 into 30, which is 75

## Measuring Length

12 inches	1 foot
36 inches	1 yard
3 feet	1 yard
5,280 feet	1 mile
1,760 yards	1 mile

Unit	Symbol	Abbreviation
Inch	"	In.
Foot/feet	'	Ft.
Yard	None	Yd.
Mile	None	mi.



## Measuring Liquid Capacity

1 tablespoon	3 teaspoons
1 fluid ounce	2 tablespoons
1 cup	16 tablespoons
1 cup	8 fluid ounces
1 pint	2 cups
1 quart	2 pints
1 gallon	4 quarts

Unit	Abbreviation
Teaspoon	tsp. or t.
Tablespoon	Tbsp. or T.
Fluid ounce	fl. oz.
Cup	c.
Pint	p.
Quart	qt.
Gallon	gal.

## Formulas

### Area of a:

Square	Area = side <sup>2</sup>
Rectangle	Area = length x width
Parallelogram	Area = base x height
Triangle	Area = $\frac{1}{2}$ x base x height
Trapezoid	Area = $\frac{1}{2}$ x (base <sub>1</sub> + base <sub>2</sub> ) x height
Circle	Area = $\pi$ x radius <sup>2</sup> ; $\pi$ is approximately 3.14

### Perimeter of a:

Square	Perimeter = 4 x side
Rectangle	Perimeter = (2 x length) + (2 x width)
Triangle	Perimeter = side <sub>1</sub> + side <sub>2</sub> + side <sub>3</sub>
Circle	Circumference = $\pi$ x diameter; $\pi$ is approximately 3.14

### Volume of a:

Cube	Volume = edge <sup>3</sup>
Rectangular solid	Volume = length x width x height
Square base pyramid	Volume = $\frac{1}{3}$ x (base edge) <sup>2</sup> x height
Cylinder	Volume = $\pi$ x radius <sup>2</sup> x height; $\pi$ is approximately 3.14
Cone	Volume = $\frac{1}{3}$ x $\pi$ x radius <sup>2</sup> x height; $\pi$ is approximately 3.14

## Pythagorean Relationship

For a right triangle, where  $a$  and  $b$  are legs, and  $c$  is the hypotenuse,  $a^2 + b^2 = c^2$

## Measures of Central Tendency (Statistics)

**Mean** =  $\frac{x_1+x_2+x_3+\dots+x_n}{n}$ , where the  $x$ 's are the values for which a mean is desired, and  $n$  is the total number of values for  $x$ .

**Median** = the middle value of an odd number of ordered values, and halfway between the two middle values of an even number of ordered values.

**Mode** = the value that occurs most often in a set of data

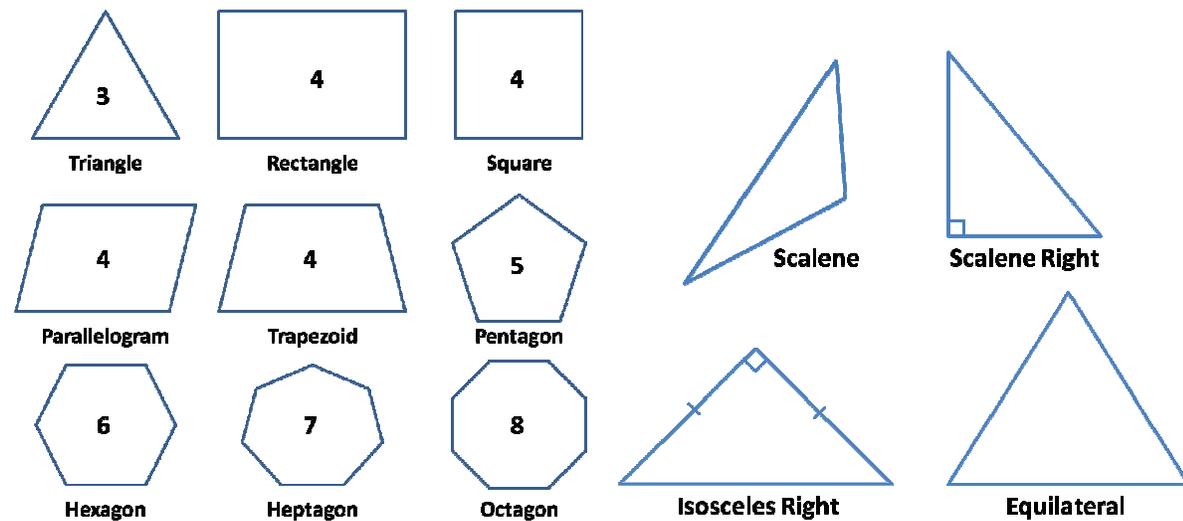
Simple interest                      Interest = principal x rate x time

Distance traveled                  Distance = rate x time

Total cost                            Total cost = (number of units) x (price per unit)

### Polygon Shapes

A polygon is a closed shape with three or more sides. Some of the more common shapes are shown below. The number inside the shape is the number of sides. Remember that a shape is known by the number of its sides, however, NOT by its shape! Count the number of sides to determine which type of shape that it is. The picture on the right hand side shows types of triangles. An equilateral triangle has three equal sides. An isosceles triangle has two equal sides. A scalene triangle has unequal sides, and may include an obtuse angle (one greater than  $90^\circ$ ). Right triangles have one angle of  $90^\circ$ , and have special properties. (See the Pythagorean Relationship above.)



### Solving Simple Equations

1. Keep the two sides of the equation equal. Think of the equation as a balance scale.
2. Think about the operation of the equation. Are you adding, subtracting, multiplying, or dividing?
3. Isolate the variable by performing the opposite (or inverse) operation on **both** sides of the equation. Addition and subtraction are opposites. Multiplication and division are opposites.

Examples:

$$n - 15 = 33$$

$$n - 15 + 15 = 33 + 15$$

$$n = 48$$

The operation is subtraction ( $n - 15$ )

The opposite operation is addition. Add 15 to **both** sides.

-15 and 15 cancel, leaving the variable isolated.  $33 + 15 = 48$

$$5y = 40$$

$$\frac{5y}{5} = \frac{40}{5}$$

$$y = 8$$

The operation is multiplication (5 times y).

The opposite operation is division. Divide **both** sides by 5.

Performing the division leaves the variable isolated.

(Note that any letter can be used as a variable.)

### The Cartesian (Grid) Coordinate Plane

The Cartesian plane shows location in two dimensions, usually written as **x** and **y**. **x** is used to show distance horizontally, and **y** to show distance vertically. The division of the plane is along two axes, called the **x** axis and the **y** axis. Where the two axes meet is called the **origin**, and has the coordinate of (0,0). Coordinates are always listed in this way, with the **x** coordinate first. To find a given point, move left or right along the **x** axis to the given value, then vertically to the given **y** value. The picture below shows how the plane looks, with some points added to show the different ways point values might look. The **x** and **y** axes divide the plane into four quadrants, which are numbered I to IV, beginning with the upper right quadrant and proceeding counterclockwise around the grid. Coordinates in Quadrant I are both positive numbers. Coordinates in Quadrant II are negative for **x** values and positive for **y** values. Coordinates in Quadrant III are negative for **x** values and negative for **y** values. Coordinates in Quadrant IV are positive for **x** values and negative for **y** values.

