Solving Equations with Whole Numbers

Important Concept:

What is an equation: An equation always has an equal sign (=). That means the value on the left hand side is equal to the value on the right hand side. For Example: x + 5 = 11 is an equation. However, x + 5 only is an expression because there is no equal sign there.

Solving for an unknown number in an equation:

The steps are as follow (we still use x +5 = 11 as our example):

Step 1: You must set a clear idea in your mind: Your purpose is to keep only the unknown number "x" on the left hand side and find an appropriate way to move all other items to the right high hand side.

Step 2: Because you are adding 5 on the left hand side, you will move it to the right hand side by subtracting 5 on both sides. For example:

$$x + 5 = 11$$
$$x + 5 - 5 = 11 - 5$$

Step 3: Simplify both sides to get the result. So, you get the final answer:

$$x = 6$$

Checking your answer: On the exam, you might want to check if your answer is correct. What you need to do is plug your answer (for example: x = 6) into original equation (X + 5 = 11) to see if value on the left hand side equals the value on the right hand side. If values on both side are equal, it indicates that you got the correct answer.

$$x + 5 = 11$$
$$6 + 5 = 11$$
$$11 = 11$$

Applications for word problem: First thing you need to do is set the unknown number equal to X or any other letter. Then, translate the sentence into an equation.

For example: Five times a number is thirty, find the number.

Step 1: Let the unknown number be equal to x.

Step 2: Translate the sentence by breaking down the whole sentence into parts. For example:

Translate "Five times a number" into 5x
Translate the word "is" into "="
Translate the word "thirty" into its numerical value 30

Step 3: Set up your equation:

$5x = 30$

Step 4: Solve the equation by dividing 5 on both sides.

$5x = 30$

$$\frac{5x}{5} = \frac{30}{5}$$

$x = 6$