**Let's Practice:**

1. **When 6 is added to four times a number, the result is 50. Find the number.**

Step 1: What are we trying to find?

A number.

Step 2: Assign a [variable](javascript:def('/Glossary/glossaryterm.aspx?word=Variable',%20500,%20500);) for the number.

Let’s call it *n*.

Step 3: Write down what the [variable](javascript:def('/Glossary/glossaryterm.aspx?word=Variable',%20500,%20500);) represents.

Let *n* = a number

Step 4: Write an equation.

We are told 6 is added to 4 times a number. Since n represents the number, four times the number would be 4*n*. If 6 is added to that, we get http://algebralab.org/img/63c42584-7b33-4978-b004-a6063849976c.gif. We know that answer is 50, so now we have an [equation](javascript:def('/Glossary/glossaryterm.aspx?word=Equation',%20500,%20500);) http://algebralab.org/img/c75fda1a-7ada-4ecb-8d88-17ac2e24f82a.gif

Step 5: Solve the equation.

http://algebralab.org/img/ae7fa8bf-87cc-4fbf-a6fb-2437a1e4dd6b.gif

Step 6: Answer the question in the problem

The problem asks us to find a number. We decided that *n* would be the number, so we have *n* = 11. The number we are looking for is 11.

Step 7: Check the answer.

The answer makes sense and checks in our [equation](javascript:def('/Glossary/glossaryterm.aspx?word=Equation',%20500,%20500);) from Step 4.   
  
http://algebralab.org/img/5d781eab-b3cf-44f4-b1d4-df91348e298b.gif

1. **The sum of a number and 9 is multiplied by -2 and the answer is -8. Find the number.**

Step 1: What are we trying to find?

A number.

Step 2: Assign a [variable](javascript:def('/Glossary/glossaryterm.aspx?word=Variable',%20500,%20500);) for the number.

Let’s call it *n*.

Step 3: Write down what the [variable](javascript:def('/Glossary/glossaryterm.aspx?word=Variable',%20500,%20500);) represents.

Let *n* = a number

Step 4: Write an equation.

We know that we have the sum of a number and 9 which will give us *n* + 9. We are then told to multiply that by -2, so we have http://algebralab.org/img/c63b7638-01e5-409a-aeaa-5b0e02df2c32.gif. Be very careful with your parentheses here. The way this is worded indicates that we find the sum first and then multiply. We also know the answer is -8. So we will solve http://algebralab.org/img/e33c9ae9-926b-4686-a7bd-ee92211a2e0b.gif

Step 5: Solve the equation.



Step 6: Answer the question in the problem

The problem asks us to find a number. We decided that *n* would be the number, so we have *n* = -5. The number we are looking for is -5.

Step 7: Check the answer.

The answer makes sense and checks in our [equation](javascript:def('/Glossary/glossaryterm.aspx?word=Equation',%20500,%20500);) from Step 4.   
  
http://algebralab.org/img/b149891b-bca9-4fc5-8e97-16f1916f10e5.gif

1. **On an algebra test, the highest grade was 42 points higher than the lowest grade. The sum of the two grades was 138. Find the lowest grade.**

Step 1: What are we trying to find?

The lowest grade on an algebra test.

Step 2: Assign a [variable](javascript:def('/Glossary/glossaryterm.aspx?word=Variable',%20500,%20500);) for the lowest test grade.

Let’s call it *l*.

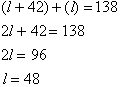
Step 3: Write down what the [variable](javascript:def('/Glossary/glossaryterm.aspx?word=Variable',%20500,%20500);) represents.

Let *l* = the lowest grade

Step 4: Write an equation.

Whatever the lowest grade is, we are told that the highest grade is 42 points higher than that. That means we need to add 42 to the lowest grade. This tells us the highest grade is http://algebralab.org/img/59a0c79c-a822-40a1-b5e0-e2e3ec32c4f0.gif. We also know that the highest grade added to the lowest grade is 138. So, (highest grade) + (lowest grade) = 142. In terms of our variable, http://algebralab.org/img/6293bf29-8cd9-4197-a0e6-f729268ce216.gif

Step 5: Solve the equation.



Step 6: Answer the question in the problem

The problem asks us to find the lowest grade. We decided that *l* would be the number, so we have *l* = 48. The lowest grade on the algebra test was 48.

Step 7: Check the answer.

The answer makes sense and checks in our [equation](javascript:def('/Glossary/glossaryterm.aspx?word=Equation',%20500,%20500);) from Step 4.   
  
http://algebralab.org/img/a3f40984-6eeb-49f6-a5be-e14fb28c33f8.gif

1. **At the end of the day, a pharmacist counted and found she has 4/3 as many prescriptions for antibiotics as she did for tranquilizers. She had 84 prescriptions for the two types of drugs. How many prescriptions did she have for tranquilizers?**

Step 1: What are we trying to find?

The number of prescriptions for tranquilizers.

Step 2: Assign a [variable](javascript:def('/Glossary/glossaryterm.aspx?word=Variable',%20500,%20500);) for the number of tranquilizer prescriptions.

Let’s call it *t*.

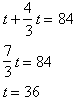
Step 3: Write down what the [variable](javascript:def('/Glossary/glossaryterm.aspx?word=Variable',%20500,%20500);) represents.

Let *t* = number of tranquilizer prescriptions

Step 4: Write an equation.

We have to be careful here. The pharmacist had 4/3 as many prescriptions for antibiotics as she did for tranquilizers. Let’s think about this in terms of numbers first. Suppose there were 3 tranquilizer prescriptions, 4/3 as many would [mean](javascript:def('/Glossary/glossaryterm.aspx?word=Mean',%20500,%20500);) there were 4 prescriptions for antibiotics. Or if there were 30 tranquilizer prescriptions, then 4/3 as many for antibiotics, would [mean](javascript:def('/Glossary/glossaryterm.aspx?word=Mean',%20500,%20500);) there were 40 antibiotic prescriptions. In each case, we are taking the number of tranquilizers and multiplying by 4/3 to get the number of antibiotic prescriptions. So if *t* is the number of tranquilizer prescriptions, then http://algebralab.org/img/875beea7-c3f0-484e-9c3b-4972432ab65d.gifis the number of antibiotic prescriptions. We are told that together the two types of prescriptions add up to 84. So we end up with the [equation](javascript:def('/Glossary/glossaryterm.aspx?word=Equation',%20500,%20500);) http://algebralab.org/img/a7e7eadc-bcac-4e08-b864-3d240fa3d303.gif.

Step 5: Solve the equation.



Step 6: Answer the question in the problem

The problem asks us to find the number of prescriptions for tranquilizers. We decided that *t* would be the number of prescriptions for tranquilizers, so we have *t* = 36. There were 36 prescriptions for tranquilizers.

Step 7: Check the answer.

The answer makes sense and checks in our [equation](javascript:def('/Glossary/glossaryterm.aspx?word=Equation',%20500,%20500);) from Step 4.   
  
http://algebralab.org/img/c5c8936d-6dc4-4fa7-ab96-95f6aa6faaee.gif