1. The difference of two numbers a and b is 5. Their sum is 27. Find a and b.

2. The sum of two numbers a and b is 9. Their difference is 7. Find a and b.

3. The sum of two numbers a and b is 40. Their difference is 18. Find a and b.
How to find two numbers based on sum and difference

1. The difference of two numbers $a$ and $b$ is 5. Their sum is 27. Find $a$ and $b$.

   Let's first of all form a two variable equation with $a$ and $b$ as variables.

   
   Now, let's substitute the value of $a + b = 27$ in equation 1 above to find $b$.

   

   $a - b = 5 \quad (1) \rightarrow \text{the difference of } a \text{ and } b$
   
   $a + b = 27 \quad (2) \rightarrow \text{the sum of } a \text{ and } b$

   

   $2a + 0 = 32 \quad (1) + (2) \rightarrow \text{the sum of the 2 equations}$

   

   $\frac{2a}{2} = \frac{32}{2}$

   

   $a = 16$

   

   Therefore, $a = 16$ and $b = 11$.

2. The sum of two numbers $a$ and $b$ is 9. Their difference is 7. Find $a$ and $b$.

   Let's first of all form a two variable equation with $a$ and $b$ as variables.

   
   Now, let's substitute the value of $a + b = 9$ in equation 1 above to find $b$.

   

   $a - b = 7 \quad (1) \rightarrow \text{the difference of } a \text{ and } b$

   

   $a + b = 9 \quad (2) \rightarrow \text{the sum of } a \text{ and } b$

   

   $2a = 16 \quad (1) + (2) \rightarrow \text{the sum of the 2 equations}$

   

   $\frac{2a}{2} = \frac{16}{2}$

   

   $a = 8$

   

   Therefore, $a = 8$ and $b = 1$.

3. The sum of two numbers $a$ and $b$ is 40. Their difference is 18. Find $a$ and $b$.

   Let's first of all form a two variable equation with $a$ and $b$ as variables.

   
   Now, let's substitute the value of $a + b = 40$ in equation 1 above to find $b$.

   

   $a - b = 18 \quad (1) \rightarrow \text{the difference of } a \text{ and } b$

   

   $a + b = 40 \quad (2) \rightarrow \text{the sum of } a \text{ and } b$

   

   $2a = 58 \quad (1) + (2) \rightarrow \text{the sum of the 2 equations}$

   

   $\frac{2a}{2} = \frac{58}{2}$

   

   $a = 29$

   

   Therefore, $a = 29$ and $b = 11$.