How to find two numbers based on product and quotient

1. The product of two numbers \(a\) and \(b\) is 6. Their difference is 1 find \(a\) and \(b\).

2. The sum of two numbers \(a\) and \(b\) is 32. Their quotient is 7. Find \(a\) and \(b\).
1. The product of two numbers \(a\) and \(b\) is 6. Their difference is 1. Find \(a\) and \(b\).

Let’s try to think of two pairs of numbers whose differences is 1.

\[
\begin{array}{cccc}
1 - 0 &=& 1 \\
2 - 1 &=& 1 \\
3 - 2 &=& 1 \\
4 - 3 &=& 1 \\
5 - 4 &=& 1 \\
6 - 5 &=& 1 \\
\end{array}
\]

Now, pick out two pairs of numbers from above with a product of 6.

\[
\begin{array}{cccc}
1 \times 0 &=& 0 \\
2 \times 1 &=& 2 \\
3 \times 2 &=& 6 \\
4 \times 3 &=& 12 \\
5 \times 4 &=& 20 \\
6 \times 5 &=& 30 \\
\end{array}
\]

You see that, 3 and 2 gives a product of 6.

So, \(a = 3\) and \(b = 2\).

2. The sum of two numbers \(a\) and \(b\) is 32. Their quotient is 7. Find \(a\) and \(b\).

Let’s try to think of two pairs of numbers whose difference is 32.

\[
\begin{array}{cccc}
31 + 1 &=& 32 \\
30 + 2 &=& 32 \\
27 + 5 &=& 32 \\
26 + 6 &=& 32 \\
29 + 3 &=& 32 \\
28 + 4 &=& 32 \\
\end{array}
\]

Now, pick out two pairs of numbers from above with a quotient of 7.

\[
\begin{array}{cccc}
31 \div 1 &=& 31 \\
30 \div 2 &=& 15 \\
29 \div 3 &=& 9 R 2 \\
28 \div 4 &=& 7 \\
27 \div 5 &=& 5 R 2 \\
\end{array}
\]

You see that, 28 and 4 gives a quotient of 7.