

Lesson 107 - Number Word Problems

32 Digits 3, 2 Sum of the digits $3+2=5$
 Value $32 = 3 \cdot 10 + 2$

TU Digits T, U Sum of the digits $T+U$
 Value $10T+U$ Value switched $10U+T$

1. The sum of the digits in a two-digit counting number is 11. If the digits are reversed, the new number is 27 greater than the original. What was the original number?

Original = $TU = 10T+U$
 Switched = $UT = 10U+T$

$$\begin{cases} T+U=11 \\ 10U+T=10T+U+27 \end{cases}$$

$$\begin{cases} T+U=11 \\ 9U=9T+27 \end{cases}$$

$$\begin{cases} T+U=11 \\ U=T+3 \end{cases}$$

$$\begin{aligned} T+T+3 &= 11 \\ 2T &= 8 \\ T &= 4 \\ U &= 7 \\ TU &= 47 \end{aligned}$$

2. The sum of the digits of a two-digit counting number is 9. When the digits are reversed, the new number is 45 less than the original number. What was the original number?

$$\begin{cases} T+U=9 \\ 10U+T=10T+U-45 \end{cases}$$

$$9U=9T-45$$

$$U=T-5$$

$$TU = 72$$

$$\begin{aligned} T+T-5 &= 9 \\ 2T &= 14 \\ T &= 7 \\ U &= 2 \end{aligned}$$