Task:

Raj is 45 years old and his mother is 73, how many years ago was Raj's mother three times his age?

Solution:

Let's assume that x years ago Raj's mother was three times his age. We can represent this by the following equation: $\frac{73-x}{45-x} = 3$

Solve it:

$$\frac{73 - x}{45 - x} = 3$$

Suppose that $45 - x \neq 0$ and multiply the equation by $45 - x$.

$$73 - x = 3(45 - x)$$

Expand the brackets.

$$73 - x = 135 - 3x$$

Transfer the values of different orders (with x and without it) on different sides of the equal sign.

$$3x - x = 135 - 73$$

$$2x = 62$$

Divide the equation by 2.

$$x = 31$$

Answer: 31 years ago.