

Assumptions: All friends pay the same amount as each other

Those who are not going do not contribute to the expenses

Model: Let the number of friends initially be x

Let the amount paid by each friend initially be y

Equation 1: $xy = 6000$

Equation 2: $(x - 3)(y + 100) = 6000$

Solution: $y = 6000/x$

Substitute into equation 2

$$(x - 3)\left(\frac{6000}{x} + 100\right) = 6000$$

$$(x - 3)(6000 + 100x) = 6000x$$

$$6000x + 100x^2 - 18000 - 300x = 6000x$$

$$x^2 - 3x - 180 = 0$$

$$(x - 15)(x + 12) = 0$$

$$x = 15 \text{ or } -12$$

Since the number of friends cannot be negative, $x = 15$

$$y = \frac{6000}{15} = 400$$

There were 15 friends initially.

Discussion: In the solution, since the equation in the model is quadratic, the value of x can take 2 values, 15 or -12. However, there cannot be a negative number of friends, thus the value of -12 is rejected.

The assumptions made are also important, since the question does not mention whether all friends share the expenses equally, or if those who gave up are still willing to share in the expenses.