

Answer on Question #37516 – Math - Algebra

Question: if $(a + b)^2 = 361$ and $a \cdot b = -120$ calculate the value $a^2 + b^2$.

Solution: let us calculate the left part of the equation $(a + b)^2 = 361$:

$$(a + b)^2 = (a + b)(a + b) = a^2 + a \cdot b + b \cdot a + b^2 = a^2 + 2ab + b^2$$

Now we obtain equation

$$a^2 + 2ab + b^2 = 361,$$

from which we can express the value of $a^2 + b^2$:

$$a^2 + b^2 = 361 - 2ab = 361 - 2 \cdot (-120) = 361 + 240 = 601$$

Answer: $a^2 + b^2 = 601$.