

WORD PROBLEMS INVOLVING PERFECT SQUARES

- Need some practice solving equations involving perfect squares first?
[Solving Simple Equations involving Perfect Squares](#)
[Solving More Complicated Equations involving Perfect Squares](#)



([more mathematical cats](#))

Here, you will solve word problems that result in equations involving perfect squares.

EXAMPLES:

Question: I'm thinking of a number.
The square of 3 times this number is 25.
What number(s) could I be thinking of?

Solution:

$$(3x)^2 = 25$$

$$3x = \pm 5$$

$$3x = 5 \text{ or } 3x = -5$$

$$x = \frac{5}{3} \text{ or } x = -\frac{5}{3}$$

Question: I'm thinking of a number.

When I take one less than three times this number, and then square the result, I end up with the number 25.

What number(s) could I be thinking of?

Solution:

$$(3x - 1)^2 = 25$$

$$3x - 1 = \pm 5$$

$$3x - 1 = 5 \text{ or } 3x - 1 = -5$$

$$3x = 6 \text{ or } 3x = -4$$

$$x = 2 \text{ or } x = -\frac{4}{3}$$

Question: I'm thinking of a negative number.

When I take the sum of this number and 2, and then square the result, I end up with the number 9.
What number am I thinking of?

Solution:

$$(x + 2)^2 = 9$$

$$x + 2 = \pm 3$$

$$x + 2 = 3 \text{ or } x + 2 = -3$$

$$x = 1 \text{ or } x = -5$$

Since the number being thought of is negative, the answer is -5 .

Question: I'm thinking of a positive number.

When I take the difference of this number and 3, and then square the result, I end up with the number 16.
What number am I thinking of?

Solution:

$$(x - 3)^2 = 16$$

$$x - 3 = \pm 4$$

$$x - 3 = 4 \text{ or } x - 3 = -4$$

$$x = 7 \text{ or } x = -1$$

Since the number being thought of is positive, the answer is 7.