



Maths Teacher – Step-by-Step Solution

Question

Solve step by step: The product of two consecutive positive integers is 132. Find the two integers.

Let's solve the problem step by step.

Step 1: Define the variables

Let the two consecutive positive integers be:

- First integer = n
 - Second integer = $n + 1$
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Step 2: Write the equation representing the product

The product of the two consecutive integers is given as 132, so:

$$n \times (n + 1) = 132$$

Step 3: Expand the equation

$$n^2 + n = 132$$

Step 4: Rearrange into standard quadratic form

$$n^2 + n - 132 = 0$$

Step 5: Solve the quadratic equation

We can solve using the quadratic formula:

$$n = [-b \pm \sqrt{(b^2 - 4ac)}] / 2a$$

For the equation $n^2 + n - 132 = 0$:

- $a = 1$
- $b = 1$
- $c = -132$

Calculate the discriminant:

$$D = b^2 - 4ac = 1^2 - 4 \times 1 \times (-132) = 1 + 528 = 529$$

Step 6: Find the roots

$$\sqrt{529} = 23$$

$$n = [-1 \pm 23] / 2$$

Two solutions:

$$1) n = (-1 + 23) / 2 = 22 / 2 = 11$$

$$2) n = (-1 - 23) / 2 = -24 / 2 = -12$$

Step 7: Select the positive integer solution

Since the problem states positive integers, take $n = 11$.

The two consecutive integers are:

11 and 12

Answer:

The two consecutive positive integers whose product is 132 are **11 and 12**.