Squares and Square Roots Ex 3.3 Q1

Answer :

(i) Here, $a = 2$, $b = 5$

Step 1. Make 3 columns and write the values of a^2, 2 x a x b, and b^2 in these columns.

Column I	Column II	Column III
a^2	2 x a x b	b^2
4	20	25

Step 2. Underline the unit digit of b^2 (in Column III) and add its tens digit, if any, with 2 x a x b (in Column II).

Column I	Column II	Column III
a^2	2 x a x b	b^2
4	20 + 2	25
	22	

Step 3. Underline the unit digit in Column II and add the number formed by the tens and other digits, if any, with a^2 in Column I.

Column I	Column II	Column III
a^2	2 x a x b	b^2
4 + 2	20 + 2	25
6	22	

Step 4. Underline the number in Column I.

Column I	Column II	Column III
a^2	2 x a x b	b^2
4 + 2	20 + 2	25
6	22	

Step 5. Write the underlined digits at the bottom of each column to obtain the square of the given number.

In this case, we have:

$25^2 = 625$

Using multiplication:

$$\begin{array}{r} 25 \\ \times\ 25 \\ \hline 125 \\ 50 \\ \hline 625 \end{array}$$

This matches with the result obtained by the column method.

(ii) Here, $a = 3$, $b = 7$

Step 1. Make 3 columns and write the values of a^2, 2 x a x b, and b^2 in these columns.

Column I	Column II	Column III
a^2	2 x a x b	b^2
9	42	49

Step 2. Underline the unit digit of b^2 (in Column III) and add its tens digit, if any, with 2 x a x b (in Column II).

Column I	Column II	Column III
a^2	2 x a x b	b^2
9	42 + 4	49
	46	

Step 3. Underline the unit digit in Column II and add the number formed by the tens and other digits, if any, with a^2 in Column I.

Column I	Column II	Column III
a^2	2 x a x b	b^2
9 + 4	42 + 4	4<u>9</u>
13	4<u>6</u>	

Step 4. Underline the number in Column I.

Column I	Column II	Column III
a^2	2 x a x b	b^2
9 + 4	42 + 4	4<u>9</u>
<u>13</u>	4<u>6</u>	

Step 5. Write the underlined digits at the bottom of each column to obtain the square of the given number.

In this case, we have:

$37^2 = 1369$

Using multiplication:

37
<u>37</u>
259
<u>111</u>
1369

This matches with the result obtained using the column method.

(iii) Here, $a = 5$, $b = 4$

Step 1. Make 3 columns and write the values of a^2, 2 x a x b and b^2 in these columns.

Column I	Column II	Column III
a^2	2 x a x b	b^2
25	40	16

Step 2. Underline the unit digit of b^2 (in Column III) and add its tens digit, if any, with 2 x a x b (in Column II).

Column I	Column II	Column III
a^2	2 x a x b	b^2
25	40 + 1	1<u>6</u>
	41	

********** END **********