Name _____

Cube Root Method

Method for Finding the Cube of a Two-Digit Number

We will learn the short-cut method for finding the cube of a two-digit number.

Suppose, we have $(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$.

METHOD:

For finding the cube of a two-digit number with the tens digit = a

and the units digit = b, we make four columns, headed by

a^3, $(3a^2 \times b)$, $(3a \times b^2)$ and b^3

The rest of the procedure is the same as followed in squaring a number by the column method.

We simplify the working as;

$a^2 \times a = a^3$;

$a^2 \times 3b = 3a^2b$;

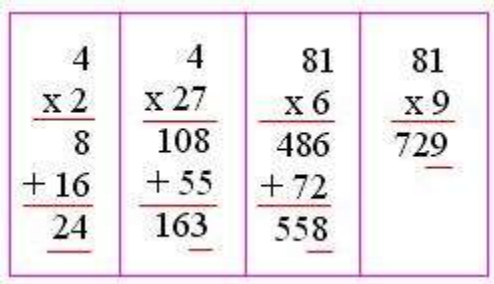
$b^2 \times 3a = 3ab^2$;

$b^2 \times b = b^3$;

1. Find the value of $(29)^3$ by the short-cut method.

Solution:

Here, a = 2 and b =9.



$a^2 \times a = a^3$;

$a^2 \times 3b = 3a^2 \times b$;

$b^2 \times 3a = 3a \times b^2$;

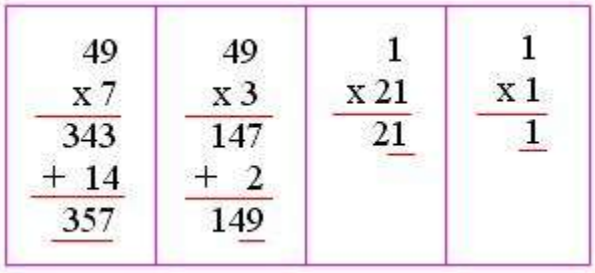
$b^2 \times b = b^3$

Therefore, $(29)^3 = 24389$

2. Find the value of $(71)^3$ by the short-cut method.

Solution:

Here, a = 7 and b = 1



$a^2 \times a = a^3$;

$a^2 \times 3b = 3a^2 \times b$;

$b^2 \times 3a = 3a \times b^2$;

$b^2 \times b = b^3$

Therefore, $(71)^3 = 357911$

By following the above examples on the method for finding the cube of a two-digit number; we can try **to find the value of each of the following using the short-cut method**;

1. $(25)^3$

2. $(47)^3$

3. $(68)^3$

4. $(84)^3$