

Multiplying 2 Numbers With The Same Ten's Digit:

A. From algebra we learn:

$$(10a+b)(10a+c) = 100(a^2) + 10(a(b+c)) + bc$$

B. Using numbers instead of variables we get:

1. Multiply the one's digits together. Write this down, carry if necessary.
2. Add the one's digits together and multiply this value times the ten's digit. Write this down, carry if necessary.
3. Square the tens digit adding any carried numbers.

C. Examples:

Ex [1] $37 \times 32 =$ _____

- a. $7 \times 2 = 14$. Write down 4, carry *1.
- b. $(7 + 2) \times 3 = 9 \times 3 = 27 + *1 = 28$. Write 8, carry *2.
- c. $3^2 = 9 + *2 = 11$. Write 11.
- d. The answer is 1184.

Ex [2] $143 \times 144 =$ _____

- a. $3 \times 4 = 12$. Write 2, carry *1.
- b. $(3 + 4) \times 14 = 7 \times 14 = 98 + *1 = 99$. Write 9, carry *9.
- c. $14^2 = 196 + *9 = 205$. Write 205.
- d. The answer is 20592.