# x2 Multiplying by 2 and 5 Using Patterns x5

Everyone should memorize the multiplication tables. Sometimes, though, there are other ways to quickly multiply and divide numbers by recognizing patterns.

For example, to multiply by 2, you can memorize the multiplication table, or you can recognize that multiplying a number by 2 is just *doubling* that number. For example:

2 x 8 = 16. Another way to find out the answer to 2 x 8 is to recognize that doubling 8  (8 + 8) also equals 16.

This works for bigger numbers, too. 2 x 136 = 272. Another way to find out the answer to 2 x 136 is to recognize that *doubling* 136 (136 + 136) also equals 272.

Another example of how recognizing patterns can help you multiply numbers is multiplying by 5. Any time you multiply a number by 5, the last digit in the answer *must be either* 5 *or* 0. If the last digit is anything other than a 5 or 0, it is wrong. For example:

- 5 x 2 = 10: The first digit of this answer is 1, and the last digit is 0.

- 5 x 3 = 15: The last digit is 5

- 5 x 8 = 40: The last digit is 0

- 5 x 18 = 90: The last digit is 0

- 5 x 253 = 1,265: The last digit is 5

- 5 x 12 *can't be* 72 because the last digit is 2 (The answer is 70)

Problems:

2 x 9 = _____ , 2 x 11 = _____ , 2 x 15 = _____ , 2 x 27 = _____ ,

2 x 32 = _____ , 2 x 77 = _____ , 2 x 112 = _____ , 2 x 164 = _____ ,

2 x 234 = _____ , 2 x 367 = _____ , 2 x 426 = _____ .

5 x 7 = _____ , 5 x 12 = _____ , 5 x 14 = _____ , 5 x 17 = _____ ,

5 x 20 = _____ , 5 x 25 = _____ .

Put a check by the problems that have to be wrong:

1. 5 x 16 = 80 _____

2. 5 x 19 = 93 _____

3. 5 x 78 = 391 _____

4. 5 x 92 = 460 _____

5. 5 x 156 = 784 _____

6. 5 x 333 = 1665 _____