Multiplying by 3 Using Patterns ❎

Multiplying by 3 is easier than multiplying by other numbers because of a certain pattern. When you multiply any number by 3, the digits of the answer must add up to a multiple of 3. Here are the multiples of 3 up to 100:

> 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60, 63, 66, 69, 72, 75, 78, 81, 84, 87, 90, 93, 96, 99.

$3 \times 4 = 12$. If you add together the two digits of the answer, you get 3. That is because $1 + 2 = 3$. 3 is the first number on the list of multiples of 3 above. This is how you know the answer is right! If the answer is not on the list above, it is wrong.

$3 \times 16 = 48$. Add up the two digits of the answer, $4 + 8 = 12$. Since 12 is on the list of multiples of 3 above, the answer is probably right.

Solve the multiplication problems below and check your answer using this method. Show your work.

1. $3 \times 8 =$ __24__

2. $3 \times 11 =$ __33__

3. $3 \times 14 =$ __42__

4. $3 \times 19 =$ __57__

5. $3 \times 20 =$ __60__

6. $3 \times 27 =$ __81__

Answer the question. Then, put a check by the problems that have to be wrong:

Ex: $3 \times 9 = 26$. Does $2 + 6 =$ a multiple of 3? (In other words, is 8 on the list above?) No.

7. $3 \times 13 = 39$. Does $3 + 9 =$ a multiple of 3? __Yes__

8. $3 \times 15 = 45$. Does $4 + 5 =$ a multiple of 3? __Yes__

9. $3 \times 21 = 62$. Does $6 + 2 =$ a multiple of 3? __No__ ✔

10. $3 \times 26 = 78$. Does $7 + 8 =$ a multiple of 3? __Yes__

11. $3 \times 33 = 97$. Does $9 + 7 =$ a multiple of 3? __No__ ✔