Multiply.

9 x 1 = **9**   9 x 2 = **18**   9 x 3 = **27**   9 x 4 = **36**

9 x 5 = **45**   9 x 1 = **9**   9 x 2 = **18**   9 x 1 = **9**

9 x 3 = **27**   9 x 1 = **9**   9 x 4 = **36**   9 x 1 = **9**

9 x 5 = **45**   9 x 1 = **9**   9 x 2 = **18**   9 x 3 = **27**

9 x 2 = **18**   9 x 4 = **36**   9 x 2 = **18**   9 x 5 = **45**

9 x 2 = **18**   9 x 1 = **9**   9 x 2 = **18**   9 x 3 = **27**

9 x 1 = **9**   9 x 3 = **27**   9 x 2 = **18**   9 x 3 = **27**

9 x 4 = **36**   9 x 3 = **27**   9 x 5 = **45**   9 x 3 = **27**

9 x 4 = **36**   9 x 1 = **9**   9 x 4 = **36**   9 x 2 = **18**

9 x 4 = **36**   9 x 3 = **27**   9 x 4 = **36**   9 x 5 = **45**

9 x 4 = **36**   9 x 5 = **45**   9 x 1 = **9**   9 x 5 = **45**

9 x 2 = **18**   9 x 5 = **45**   9 x 3 = **27**   9 x 5 = **45**

9 x 4 = **36**   9 x 2 = **18**   9 x 4 = **36**   9 x 3 = **27**

9 x 5 = **45**   9 x 3 = **27**   9 x 2 = **18**   9 x 4 = **36**

9 x 3 = **27**   9 x 5 = **45**   9 x 2 = **18**   9 x 4 = **36**

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3.D.34

Name _____   Date _____

1. Multiply. Then add the digits in each product.

10 × 9 = **90**	__9__ + __0__ = __9__
9 × 9 = **81**	__8__ + __1__ = __9__
8 × 9 = 72	__7__ + __2__ = __9__
7 × 9 = 63	__6__ + __3__ = __9__
6 × 9 = 54	__5__ + __4__ = __9__
5 × 9 = 45	__4__ + __5__ = __9__
4 × 9 = 36	__3__ + __6__ = __9__
3 × 9 = 27	__2__ + __7__ = __9__
2 × 9 = 18	__1__ + __8__ = __9__
1 × 9 = 9	__0__ + __9__ = __9__

What pattern did you notice in the table? How can this strategy help you check your work with nines facts?

For each product in the 9 times tables, the sum of the digits in the product is always 9.

2. Thomas calculates 9 × 7 by thinking about it as 70 − 7 = 63. Explain Thomas' strategy.
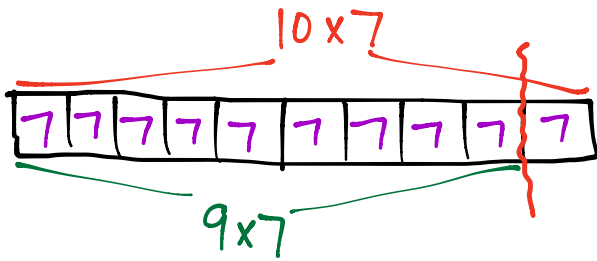
10 sevens is 70, but Thomas want 9 sevens so he needs to subtract 7 from 70 to get $9 \times 7 = 63$.

3. Alexia figures out the answer to 6 × 9 by lowering the thumb on her right hand, shown below. What is the answer? Explain Alexia's strategy.

There are 5 fingers still standing to the left of the lowered finger. Think "50".

There are 4 fingers still standing to the right of the lowered finger. Think "4".

$$50 + 4 = 54$$

4. Travis writes 72 = 9 × 8. Is he correct? Explain at least 2 strategies Travis can use to help him check his work.

$$9 \times 8 = 10 \times 8 - 8$$
$$= 80 - 8$$
$$= 72$$

$$9 \times 8 = (5 + 4) \times 8$$
$$= (5 \times 8) + (4 \times 8)$$
$$= 40 + 32$$
$$= 72$$

COMMON CORE   Lesson 14:   Identify and use arithmetic patterns to multiply.
                   Date: 7/31/13

engage^ny   3.D.39