

Reteach Packet for NC.3.OA.7 & 9

Page 1 & 2- Directions (this page and the next is unpacking from the state)

Page 3- Multiply and divide variables within 100

Page 4- Answer Key for Multiply and divide variables within 100 (for LC use only)

Page 5 Multiply and divide variables within 100 – no key provided

Page 6- Examining a multiplication table

Page 7 - Answer Key Examining a multiplication table (for LC use only)

Page 8 –Bubble Sheet

LC can check the above pages and send back via email or file share.

***unless students have an accommodation to mark in book**

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*Please send worksheets back to your math teacher via email or file share.

**All worksheets provided in this packet come from commoncoreworksheets.com and are not aligned with NC standards but a great resource to practice the expectations with the standards.

Please do your work independently and your LC can check your work. Review any answers your student got wrong and address any misconceptions.

Clarification	Checking for Understanding
<p>This standard calls for students to be fluent with multiplication and division. Students are fluent when they display accuracy, efficiency, and flexibility. Students develop fluency by understanding and internalizing the relationships that exist between and among numbers. By studying patterns and relationships in multiplication facts and relating multiplication and division, students build a foundation for fluency with multiplication and division facts. The focus of this standard extends beyond the traditional notion of <i>fact families</i>, by having students explore the inverse relationship of multiplication and division.</p> <p>"Know from memory" should focus on ample experiences working with manipulatives, pictures, arrays, word problems, and numbers to internalize the basic facts. Traditional flash cards or timed tests have not been proven as effective instructional strategies for developing fluency. Rather, numerous experiences with breaking apart actual sets of objects and developing relationships between numbers help children internalize parts of number and develop efficient strategies for fact retrieval.</p> <p>Strategies students may use to attain fluency include:</p> <ul style="list-style-type: none"> • Multiplication by zeros and ones • Doubles (2s facts), Doubling twice (4s), Doubling three times (8s) • Tens facts (relating to place value, 5×10 is 5 tens or 50) • Five facts (half of tens) • Skip counting (counting groups of ___ and knowing how many groups have been counted) • Square numbers (ex: 3×3) • Nines (10 groups less one group, e.g., 9×3 is 10 groups of 3 minus one group of 3) • Decomposing into known facts (6×7 is 6×6 plus one more group of 6) • Commutative Property of Multiplication • Fact families (Ex: $6 \times 4 = 24$; $24 \div 6 = 4$; $24 \div 4 = 6$; $4 \times 6 = 24$) • Missing factors <p>Students should have exposure to multiplication and division problems presented in both vertical and horizontal forms. Equations in the form of $a \times b = c$ and $c = a \times b$ should be used interchangeably, with the unknown in different positions.</p>	<p>CC Elementary has 40 third graders. They are taking a field trip to a museum and want to have students in equal groups during the tour. What groups could they make?</p> <ul style="list-style-type: none"> • Use your tiles or grid paper to show a model of how they could make the groups. • Draw a picture of your solutions. For each solution, write an equation. • Write a sentence to explain how you solved the problem. <p>Bob knows that $2 \times 9 = 18$. How can he use that fact to determine the answer to the following question: 18 people are divided into pairs in P.E. class? How many pairs are there? Write a division equation and explain your reasoning.</p> <p>Mr. Nala's class is making a garden. They bought 40 tomato plants. They want them in rows that have the same number of plants. There needs to be between 2 and 10 plants in each row.</p> <ul style="list-style-type: none"> • Use your tiles to show a model of how they could make the garden. For each solution, write an equation. • Write a sentence to explain how you solved the problem.

Explore patterns of numbers.																																																																																																																																																																																																																																																					
NC.3.OA.9 Interpret patterns of multiplication on a hundreds board and/or multiplication table.																																																																																																																																																																																																																																																					
Clarification	Checking for Understanding																																																																																																																																																																																																																																																				
<p>This standard calls for students to examine patterns of multiplication. The ability to recognize and explain patterns in mathematics leads students to developing the ability to make generalizations, a foundational concept in algebraic thinking.</p> <p>Students need ample opportunities to observe and identify important numerical patterns related to operations. They should build on their previous experiences with properties related to addition and subtraction to investigate multiplication and division patterns. Students investigate multiplication tables in search of patterns and explain why these patterns make sense mathematically.</p> <ul style="list-style-type: none"> • The multiples of 4, 6, 8, and 10 are all even because they can all be decomposed into two equal groups. • The doubles (multiples of 2) in a multiplication table fall on horizontal and vertical lines. • On a multiplication chart, the products in each row and column increase by the same amount (skip counting). • The multiples of any number fall on a horizontal and a vertical line due to the commutative property. • All the multiples of 5 end in a 0 or 5 while all the multiples of 10 end with 0. Every other multiple of 5 is a multiple of 10. 	<p>What do you notice about the shaded numbers in the multiplication table? When one changes the order of the factors they will still get the same product, such as $6 \times 5 = 30$ and $5 \times 6 = 30$.</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>x</th><th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th> </tr> </thead> <tbody> <tr><th>0</th><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><th>1</th><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><th>2</th><td>0</td><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td><td>14</td><td>16</td><td>18</td><td>20</td></tr> <tr><th>3</th><td>0</td><td>3</td><td>6</td><td>9</td><td>12</td><td>15</td><td>18</td><td>21</td><td>24</td><td>27</td><td>30</td></tr> <tr><th>4</th><td>0</td><td>4</td><td>8</td><td>12</td><td>16</td><td>20</td><td>24</td><td>28</td><td>32</td><td>36</td><td>40</td></tr> <tr><th>5</th><td>0</td><td>5</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td></tr> <tr><th>6</th><td>0</td><td>6</td><td>12</td><td>18</td><td>24</td><td>30</td><td>36</td><td>42</td><td>48</td><td>54</td><td>60</td></tr> <tr><th>7</th><td>0</td><td>7</td><td>14</td><td>21</td><td>28</td><td>35</td><td>42</td><td>49</td><td>56</td><td>63</td><td>70</td></tr> <tr><th>8</th><td>0</td><td>8</td><td>16</td><td>24</td><td>32</td><td>40</td><td>48</td><td>56</td><td>64</td><td>72</td><td>80</td></tr> <tr><th>9</th><td>0</td><td>9</td><td>18</td><td>27</td><td>36</td><td>45</td><td>54</td><td>63</td><td>72</td><td>81</td><td>90</td></tr> <tr><th>10</th><td>0</td><td>10</td><td>20</td><td>30</td><td>40</td><td>50</td><td>60</td><td>70</td><td>80</td><td>90</td><td>100</td></tr> </tbody> </table> <p>What do you notice about the pattern on the hundreds chart?</p> <p>All of the shaded numbers are multiples of three. I can figure that out because if I start at 3 and count over three, I land on 6. That's like $3 + 3$. If I go over three more, that's 9 or $3 + 3 + 3$. I can keep adding three, or I can write multiplication problems instead like 3×2 or 3×3.</p> <table border="1" style="width: 100%; text-align: center;"> <tbody> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> <tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr> <tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr> <tr><td>51</td><td>52</td><td>53</td><td>54</td><td>55</td><td>56</td><td>57</td><td>58</td><td>59</td><td>60</td></tr> <tr><td>61</td><td>62</td><td>63</td><td>64</td><td>65</td><td>66</td><td>67</td><td>68</td><td>69</td><td>70</td></tr> <tr><td>71</td><td>72</td><td>73</td><td>74</td><td>75</td><td>76</td><td>77</td><td>78</td><td>79</td><td>80</td></tr> <tr><td>81</td><td>82</td><td>83</td><td>84</td><td>85</td><td>86</td><td>87</td><td>88</td><td>89</td><td>90</td></tr> <tr><td>91</td><td>92</td><td>93</td><td>94</td><td>95</td><td>96</td><td>97</td><td>98</td><td>99</td><td>100</td></tr> </tbody> </table>	x	0	1	2	3	4	5	6	7	8	9	10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	3	4	5	6	7	8	9	10	2	0	2	4	6	8	10	12	14	16	18	20	3	0	3	6	9	12	15	18	21	24	27	30	4	0	4	8	12	16	20	24	28	32	36	40	5	0	5	10	15	20	25	30	35	40	45	50	6	0	6	12	18	24	30	36	42	48	54	60	7	0	7	14	21	28	35	42	49	56	63	70	8	0	8	16	24	32	40	48	56	64	72	80	9	0	9	18	27	36	45	54	63	72	81	90	10	0	10	20	30	40	50	60	70	80	90	100	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Find the value of the variable.

Answers

- 1) $90 = 9 \times E$ $E =$ _____
- 2) $24 \div 8 = M$ $M =$ _____
- 3) $V = 4 \times 3$ $V =$ _____
- 4) $P = 2 \times 10$ $P =$ _____
- 5) $7 \times J = 7$ $J =$ _____
- 6) $Q = 9 \div 9$ $Q =$ _____
- 7) $18 = G \times 2$ $G =$ _____
- 8) $63 = 9 \times N$ $N =$ _____
- 9) $6 = 36 \div F$ $F =$ _____
- 10) $T = 50 \div 10$ $T =$ _____
- 11) $28 \div B = 4$ $B =$ _____
- 12) $K \times 1 = 8$ $K =$ _____
- 13) $2 = C \div 4$ $C =$ _____
- 14) $9 = 27 \div Y$ $Y =$ _____
- 15) $9 \times H = 45$ $H =$ _____
- 16) $Z \div 4 = 1$ $Z =$ _____
- 17) $R \times 7 = 42$ $R =$ _____
- 18) $3 \times 10 = A$ $A =$ _____
- 19) $3 \div 3 = W$ $W =$ _____
- 20) $U \div 6 = 3$ $U =$ _____

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____
- 11. _____
- 12. _____
- 13. _____
- 14. _____
- 15. _____
- 16. _____
- 17. _____
- 18. _____
- 19. _____
- 20. _____



Find the value of the variable.

- 1) $90 = 9 \times E$ $E = \underline{10}$
- 2) $24 \div 8 = M$ $M = \underline{3}$
- 3) $V = 4 \times 3$ $V = \underline{12}$
- 4) $P = 2 \times 10$ $P = \underline{20}$
- 5) $7 \times J = 7$ $J = \underline{1}$
- 6) $Q = 9 \div 9$ $Q = \underline{1}$
- 7) $18 = G \times 2$ $G = \underline{9}$
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- 12) $K \times 1 = 8$ $K = \underline{8}$
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- 14) $9 = 27 \div Y$ $Y = \underline{3}$
- 15) $9 \times H = 45$ $H = \underline{5}$
- 16) $Z \div 4 = 1$ $Z = \underline{4}$
- 17) $R \times 7 = 42$ $R = \underline{6}$
- 18) $3 \times 10 = A$ $A = \underline{30}$
- 19) $3 \div 3 = W$ $W = \underline{1}$
- 20) $U \div 6 = 3$ $U = \underline{18}$

Answers

- 1. 10
- 2. 3
- 3. 12
- 4. 20
- 5. 1
- 6. 1
- 7. 9
- 8. 7
- 9. 6
- 10. 5
- 11. 7
- 12. 8
- 13. 8
- 14. 3
- 15. 5
- 16. 4
- 17. 6
- 18. 30
- 19. 1
- 20. 18



Find the value of the variable.

5

3

20

8

9

7

10

12

1

6

7

1

1) $90 = 9 \times E$ $E =$ _____

2) $24 \div 8 = M$ $M =$ _____

3) $V = 4 \times 3$ $V =$ _____

4) $P = 2 \times 10$ $P =$ _____

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9) $6 = 36 \div F$ $F =$ _____

10) $T = 50 \div 10$ $T =$ _____

11) $28 \div B = 4$ $B =$ _____

12) $K \times 1 = 8$ $K =$ _____

Answers

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____



Use the multiplication table to answer the questions.

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

- 1) Multiplying an even number times an even number results in what type of answer? Odd or Even?
- 2) Multiplying a number by 2 results in what type of answer? Odd or Even?
- 3) Multiplying an odd number times an odd number results in what type of answer? Odd or Even?
- 4) Based on the information in the table which choice BEST shows the product of 5 and 765?
3,827 3,821 3,825 3,822
- 5) Based on the information in the table which choice BEST shows the answer to 2×421 ?
841 839 842 845
- 6) What will 5×763 have in the ones place? 5 or 0?
- 7) Multiplying a number times 10 results in a _____ in the ones place.
- 8) Based on the information in the table which choice BEST shows the answer to 1×812 ?
806 809 812 811



Use the multiplication table to answer the questions.

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Answers

1. even
2. even
3. odd
4. 3,825
5. 842
6. 5
7. 0
8. 812

- 1) Multiplying an even number times an even number results in what type of answer? Odd or Even?
- 2) Multiplying a number by 2 results in what type of answer? Odd or Even?
- 3) Multiplying an odd number times an odd number results in what type of answer? Odd or Even?
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End-of-Grade Mathematics Test — Grade 3

Student Name

Calculator Inactive (Calculator Use NOT Allowed)



BEGIN TEST HERE

- | | | | | |
|-------------------|--------------------|--------------------|--------------------|--------------------|
| 1 (A) (B) (C) (D) | 7 (A) (B) (C) (D) | 13 (A) (B) (C) (D) | 19 (A) (B) (C) (D) | 25 (A) (B) (C) (D) |
| 2 (A) (B) (C) (D) | 8 (A) (B) (C) (D) | 14 (A) (B) (C) (D) | 20 (A) (B) (C) (D) | 26 (A) (B) (C) (D) |
| 3 (A) (B) (C) (D) | 9 (A) (B) (C) (D) | 15 (A) (B) (C) (D) | 21 (A) (B) (C) (D) | 27 (A) (B) (C) (D) |
| 4 (A) (B) (C) (D) | 10 (A) (B) (C) (D) | 16 (A) (B) (C) (D) | 22 (A) (B) (C) (D) | |
| 5 (A) (B) (C) (D) | 11 (A) (B) (C) (D) | 17 (A) (B) (C) (D) | 23 (A) (B) (C) (D) | |
| 6 (A) (B) (C) (D) | 12 (A) (B) (C) (D) | 18 (A) (B) (C) (D) | 24 (A) (B) (C) (D) | |

This is the end of the calculator inactive items. Do not begin the calculator active part of the test until you have raised your hand and been given a calculator.

Calculator Active (Calculator Use Allowed)



- | | | | | |
|--------------------|--------------------|--------------------|--------------------|--------------------|
| 28 (A) (B) (C) (D) | 35 (A) (B) (C) (D) | 42 (A) (B) (C) (D) | 49 (A) (B) (C) (D) | 56 (A) (B) (C) (D) |
| 29 (A) (B) (C) (D) | 36 (A) (B) (C) (D) | 43 (A) (B) (C) (D) | 50 (A) (B) (C) (D) | 57 (A) (B) (C) (D) |
| 30 (A) (B) (C) (D) | 37 (A) (B) (C) (D) | 44 (A) (B) (C) (D) | 51 (A) (B) (C) (D) | 58 (A) (B) (C) (D) |
| 31 (A) (B) (C) (D) | 38 (A) (B) (C) (D) | 45 (A) (B) (C) (D) | 52 (A) (B) (C) (D) | 59 (A) (B) (C) (D) |
| 32 (A) (B) (C) (D) | 39 (A) (B) (C) (D) | 46 (A) (B) (C) (D) | 53 (A) (B) (C) (D) | |
| 33 (A) (B) (C) (D) | 40 (A) (B) (C) (D) | 47 (A) (B) (C) (D) | 54 (A) (B) (C) (D) | |
| 34 (A) (B) (C) (D) | 41 (A) (B) (C) (D) | 48 (A) (B) (C) (D) | 55 (A) (B) (C) (D) | |

