**Overview**

This mini-assessment is designed to illustrate the important standard 3.OA.C.7, which sets an expectation for fluently multiplying and dividing within 100 and—by the end of the grade—knowing single-digit products from memory. This mini-assessment is designed for teachers to use either in the classroom, for self-learning, or in professional development settings to:

* Gain a better understanding of assessing fluency with, and memory of, single-digit products and related quotients;
* Use in professional development as an illustration of CCSS-aligned assessment problems; and,
* Evaluate students’ progress toward 3.OA.C.7 in order to prepare to teach this material or to check fluency and memory near the end of the grade.

**Making the Shifts**

This mini-assessment attends to **focus** as it addresses multiplication and division, which are at the heart of the Grade 3 standards and the greatest part of the major work of the grade.[[1]](#footnote-1) In terms of **coherence**, multiplying one-digit numbers sets the stage for multiplying multi-digit whole numbers and decimals, working with fractions, ratios, proportional relationships and algebra. Standard 3.OA.C.7 and this mini-assessment target *procedural skill and fluency* (in this case fluency and memory),one of the three elements of **rigor**.

**A Closer Look**

**3.OA.C.7:** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Standard 3.OA.C.7 is a prime example of how “[t]he Standards are not written at uniform grain size” (K–8 Publishers’ Criteria Spring 2013, p. 18). One cannot address this standard in a single day, lesson, or unit. It will take significant classroom time throughout grade 3 for students to leave grade 3 meeting the standard.

The standard has two sentences. The first sentence sets an expectation of fluent (accurate and reasonably fast) computation with single-digit products and related quotients. The standard lists mental strategies students should be using. The second sentence of the standard sets an expectation that students know single-digit products from memory. Students leaving grade 3 without having met standard 3.OA.C.7 in its entirety will be at a severe disadvantage during the remainder of their study of operations in grades 3–7 as well as in their work with fractions, ratios, proportional relationships, and algebra.

**Using the relationship between multiplication and division:**

Answer 42 ÷ 6 by knowing 7 × 6 = 42.

**Using the distributive property:**

8 × 7

= 8 × (5 + 2)

= 8 × 5 + 8 × 2

= 40 + 16

= 56.

**Name: \_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_**

|  |  |
| --- | --- |
| 9 × 2 = \_\_\_ | \_\_\_ × 7 = 56 |
| 24 ÷ 6 = \_\_\_ | 5 × 8 = \_\_\_ |
| 7 × 6 = \_\_\_ | 27 ÷ 3 = \_\_\_ |
| 35 ÷ 5 = \_\_\_ | 64 ÷ 8 = \_\_\_ |
| 9 × \_\_\_ = 36 | \_\_\_ × 7 = 21 |
| 2 × 4 = \_\_\_ | 45 ÷ 5 = \_\_\_ |
| 3 × 3 = \_\_\_ | 14 ÷ 7 = \_\_\_ |
| 36 ÷ 6 = \_\_\_ | 8 × \_\_\_ = 32 |
| 7 × 7 = \_\_\_ | 5 × \_\_\_ = 25 |
| \_\_\_ × 2 = 12 | 28 ÷ 4 = \_\_\_ |

**Name: \_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_**

|  |  |
| --- | --- |
| 9 × 2 = \_18\_ | \_8\_ × 7 = 56 |
| 24 ÷ 6 = \_4\_ | 5 × 8 = \_40\_ |
| 7 × 6 = \_42\_ | 27 ÷ 3 = \_9\_ |
| 35 ÷ 5 = \_7\_ | 64 ÷ 8 = \_8\_ |
| 9 × \_4\_ = 36 | \_3\_ × 7 = 21 |
| 2 × 4 = \_8\_ | 45 ÷ 5 = \_9\_ |
| 3 × 3 = \_9\_ | 14 ÷ 7 = \_2\_ |
| 36 ÷ 6 = \_6\_ | 8 × \_4\_ = 32 |
| 7 × 7 = \_49\_ | 5 × \_5\_ = 25 |
| \_6\_ × 2 = 12 | 28 ÷ 4 = \_7\_ |

1. For more on the Major Work of the grade, see [achievethecore.org/emphases](file:///C:\Users\bbeske\AppData\Local\Microsoft\Windows\Temporary%20Internet%20Files\Content.Outlook\8TJ3L7YW\achievethecore.org\emphases). [↑](#footnote-ref-1)