Fraction Operations and Models

Unit 2 Test

Standards 6.NS.B.3, 6.NS.B.4a, 6.NS.B.2, 6.NS.A.1

Learning target I can apply the skills taught so far, show my reasoning, and check my answers.

Assessment 20 open-response questions. Questions 1–4 review Unit 1; the remaining 16 assess this unit. Review accounts for exactly 20% of questions and points.

Administration

0–5 minutes Distribute only the attached student assessment pages. Read directions and confirm students have pencils, rulers, and extra plotting paper when needed. Ask for calculations, models, labels, and explanations where requested.

5–45 minutes Students complete the unit test independently. Allow an extended block for model-heavy responses as needed. Follow the course policy of doing arithmetic by hand unless an established classroom accommodation applies.

Final minutes Collect responses and ask students to note one item they want to revisit. Use the next teaching session for corrections and focused reteaching.

Scoring and Feedback

5 points each, 100 total: 2 for setup or model, 2 for calculation or reasoning, 1 for units, interpretation, or the requested check.

Score prior-unit review separately from current-unit work. Accept equivalent exact answers and valid alternate methods. For drawings, use the coordinate, face, frequency, or summary information in the attached key to check the representation.

Suggested follow-up based on current-unit items: 80% or above, continue with brief corrections; 60–79%, provide targeted small-group support; below 60%, reteach with models. These are instructional suggestions, not state proficiency cut scores.

Likely misconceptions Watch for taking the reciprocal of the dividend, confusing a partial group with a fraction of the whole, and rounding full-container counts upward.

Name _____ Date _____

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Questions 1–4 review Unit 1 (20%). The remaining questions assess this unit. Show work, simplify exact answers, label units, and justify models or explanations. 5 points per question; 100 points total.

1. [Review] Use the standard algorithm: 57.2 + 5.4. Show your regrouping or division steps.

2. [Review] Use the standard algorithm: 24.7 × 8.6. Show your regrouping or division steps.

3. [Review] Find the GCF of 6 and 9. Show factor pairs or prime factors.

4. [Review] Use long division: 3,190 ÷ 22. Show the algorithm and check.

5. [Current unit] Calculate 3/4 × 1/4. Simplify.

6. [Current unit] Calculate 1 1/2 × 1 1/2. Simplify.

7. [Current unit] Draw a bar partitioned into 12 equal parts. Shade 11 parts. Circle groups of 10 parts. Use the model to find 11/12 ÷ 5/6.

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8. [Current unit] Draw a bar partitioned into 4 equal parts. Shade 2 parts. Circle groups of 2 parts. Use the model to find 1/2 ÷ 1/2.

9. [Current unit] Calculate 7/8 ÷ 3/2. Simplify.

10. [Current unit] Calculate 1/2 ÷ 5/4. Simplify.

11. [Current unit] Calculate 3 ÷ 1 2/3. Simplify.

12. [Current unit] Calculate 5 ÷ 2 1/4. Simplify.

13. [Current unit] A ribbon is 2 m long. Each piece is 2 m. How many piece-lengths are in the ribbon? Include any fractional piece.

14. [Current unit] A jug contains 1/3 L. Each full bottle needs 4/5 L. How many full bottles can be filled, and how much liquid remains?

Name _____ Date _____

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15. [Current unit] The equation 1 × n = 7/8 represents equally sized portions. Find n, write the related division equation, and check.

16. [Current unit] Calculate 1/2 ÷ 1/3. Simplify and explain why your answer is reasonable.

17. [Current unit] Calculate 5/8 × 1/2. Simplify and explain why your answer is reasonable.

18. [Current unit] Calculate 1 1/2 × 2 1/2. Simplify and explain why your answer is reasonable.

19. [Current unit] Draw a bar partitioned into 6 equal parts. Shade 3 parts. Circle groups of 2 parts. Use the model to find 1/2 ÷ 1/3. Explain the partial group.

20. [Current unit] Draw a bar partitioned into 4 equal parts. Shade 4 parts. Circle groups of 1 parts. Use the model to find 1 ÷ 1/4. Explain the partial group.

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1. 62.6
Reasoning Align decimal points; 57.2 + 5.4 = 62.6.

2. 212.42
Reasoning Compute the whole-number product and restore decimal places: 24.7 × 8.6 = 212.42.

3. 3
Reasoning Common factors: 1, 3; greatest is 3.

4. 145
Reasoning 31 ÷ 22: write 1, subtract 22, remainder 9; bring down the next digit: 99 ÷ 22: write 4, subtract 88, remainder 11; bring down the next digit: 110 ÷ 22: write 5, subtract 110, remainder 0. Check: 22 × 145 = 3190.

5. 3/16
Reasoning 3/4 × 1/4 = 3/16.

6. 9/4
Reasoning 3/2 × 3/2 = 9/4.

7. 11/10
Reasoning Each small part is 1/12; 11 shaded parts divided into groups of 10 gives 11/10 = 11/10 groups.

8. 1
Reasoning Each small part is 1/4; 2 shaded parts divided into groups of 2 gives 2/2 = 1 groups.

9. 7/12
Reasoning 7/8 ÷ 3/2 = 7/8 × 2/3 = 7/12.

10. 2/5
Reasoning 1/2 ÷ 5/4 = 1/2 × 4/5 = 2/5.

11. 9/5
Reasoning 3 ÷ 5/3 = 3 × 3/5 = 9/5.

12. 20/9
Reasoning 5 ÷ 9/4 = 5 × 4/9 = 20/9.

13. 1 piece-lengths
Reasoning 2 ÷ 2 = 2 × 1/2 = 1.

14. 0 bottles; 1/3 L left
Reasoning 1/3 ÷ 4/5 = 1/3 × 5/4 = 5/12. Only whole bottles count; subtract the liquid used.

15. n = 7/8; 7/8 ÷ 1 = 7/8
Reasoning 7/8 ÷ 1 = 7/8 × 1 = 7/8. Check: 1 × 7/8 = 7/8.

16. 3/2
Reasoning 1/2 ÷ 1/3 = 1/2 × 3 = 3/2.

17. 5/16
Reasoning 5/8 × 1/2 = 5/16.

18. 15/4
Reasoning 3/2 × 5/2 = 15/4.

19. 3/2
Reasoning Each small part is 1/6; 3 shaded parts divided into groups of 2 gives 3/2 = 3/2 groups.

20. 4
Reasoning Each small part is 1/4; 4 shaded parts divided into groups of 1 gives 4/1 = 4 groups.