Expressions and Equivalence

Unit 6 Test

Standards 6.NS.C.6c, 6.NS.C.7a, 6.NS.C.7b, 6.NS.C.6b, 6.NS.C.8, 6.EE.A.1, 6.EE.A.2c, 6.EE.A.2b, 6.EE.A.2a, 6.EE.B.6, 6.EE.A.3, 6.EE.A.4

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 5; 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 exponents versus multiplication, operation order, and distributing to every term.

Name _____ Date _____

Expressions and Equivalence

Unit 6 Test

Standards assessed 6.NS.C.6c, 6.NS.C.7a, 6.NS.C.7b, 6.NS.C.6b, 6.NS.C.8, 6.EE.A.1, 6.EE.A.2c, 6.EE.A.2b, 6.EE.A.2a, 6.EE.B.6, 6.EE.A.3, 6.EE.A.4

Questions 1–4 review Unit 5 (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] Draw a horizontal or vertical number line. Plot and label -4, 0, and 3.

2. [Review] Compare -5 ___ -3 using <, >, or =. Sketch a number line to justify.

3. [Review] Plot P(-3, 2) on a coordinate plane and name its quadrant.

4. [Review] Plot (-7, 2) and (4, 2). Find their distance.

5. [Current unit] Write 4^4 as repeated multiplication and evaluate.

6. [Current unit] Write 3^2 as repeated multiplication and evaluate.

7. [Current unit] Evaluate 8 + 2 × 3. Show the intermediate steps.

Name _____ Date _____

Expressions and Equivalence

Unit 6 Test

Standards assessed 6.NS.C.6c, 6.NS.C.7a, 6.NS.C.7b, 6.NS.C.6b, 6.NS.C.8, 6.EE.A.1, 6.EE.A.2c, 6.EE.A.2b, 6.EE.A.2a, 6.EE.B.6, 6.EE.A.3, 6.EE.A.4

8. [Current unit] Evaluate (7 + 3) × 5^2. Show the intermediate steps.

9. [Current unit] For 2x + 2y + 3, list terms, coefficients, and the constant.

10. [Current unit] Write an expression for 5 times the sum of x and 6.

11. [Current unit] Write an expression for 2 times the sum of x and 4.

12. [Current unit] Evaluate x^2 + 6y for x = 6 and y = 4.

13. [Current unit] Evaluate x^2 + 6y for x = 2 and y = 6.

14. [Current unit] Expand 5(3x + 3). Verify your result at x = 2.

Name _____ Date _____

Expressions and Equivalence

Unit 6 Test

Standards assessed 6.NS.C.6c, 6.NS.C.7a, 6.NS.C.7b, 6.NS.C.6b, 6.NS.C.8, 6.EE.A.1, 6.EE.A.2c, 6.EE.A.2b, 6.EE.A.2a, 6.EE.B.6, 6.EE.A.3, 6.EE.A.4

15. [Current unit] Simplify 4(x + 4) + 6x. Explain which terms combine.

16. [Current unit] Are 3(x + 3) and 3x + 9 equivalent for every x? Use a property or a counterexample.

17. [Current unit] Write 5^3 as repeated multiplication and evaluate. Explain why it differs from 5 × 3.

18. [Current unit] Write 4^4 as repeated multiplication and evaluate. Explain why it differs from 4 × 4.

19. [Current unit] Evaluate 20 ÷ 4 × 6 + 4^2. Show the intermediate steps.

20. [Current unit] Evaluate 40 ÷ 5 × 7 + 5^2. Show the intermediate steps.

Unit 6 Test

Expressions and Equivalence

1. -4 < 0 < 3; unit steps
Reasoning Negative -4 is left of or below 0; 3 is right of or above 0. Use equal intervals.

2. <
Reasoning -5 < -3; greater numbers lie farther right.

3. Quadrant II
Reasoning Move 3 left, then 2 up.

4. 11 units
Reasoning Only one coordinate changes. Opposite sides of 0: 7 + 4 = 11.

5. 4 × 4 × 4 × 4 = 256
Reasoning The exponent counts 4 factors of 4; multiply all factors.

6. 3 × 3 = 9
Reasoning The exponent counts 2 factors of 3; multiply all factors.

7. 14
Reasoning Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 14.

8. 250
Reasoning Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 250.

9. Terms 2x, 2y, 3; coefficients 2, 2; constant 3
Reasoning Terms are separated by addition; coefficients multiply variables.

10. 5(x + 6)
Reasoning Group the sum before multiplying.

11. 2(x + 4)
Reasoning Group the sum before multiplying.

12. 60
Reasoning Substitute first: 6^2 + 6 × 4 = 60.

13. 40
Reasoning Substitute first: 2^2 + 6 × 6 = 40.

14. 15x + 15; both give 45 at x = 2
Reasoning Multiply the outside factor by every inside term, including the constant.

15. 10x + 16
Reasoning Add coefficients of x terms; add only constants to constants. Distribute first if needed.

16. Yes; distribution gives 3x + 9
Reasoning 3(x + 3) = 3x + 9. This matches.

17. 5 × 5 × 5 = 125; 5 × 3 = 15
Reasoning The exponent counts 3 factors of 5; multiply all factors.

18. 4 × 4 × 4 × 4 = 256; 4 × 4 = 16
Reasoning The exponent counts 4 factors of 4; multiply all factors.

19. 46
Reasoning Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 46.

20. 81
Reasoning Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 81.