Equations Inequalities and Relationships

Unit 7 Test

Standards 6.EE.A.1, 6.EE.A.2c, 6.EE.A.2a, 6.EE.B.6, 6.EE.A.4, 6.EE.B.5, 6.EE.B.7, 6.EE.B.8, 6.EE.C.9

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 6; 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 inverse operations, equality on both sides, open versus closed endpoints, and input/output order.

Name _____ Date _____

Equations Inequalities and Relationships

Unit 7 Test

Standards assessed 6.EE.A.1, 6.EE.A.2c, 6.EE.A.2a, 6.EE.B.6, 6.EE.A.4, 6.EE.B.5, 6.EE.B.7, 6.EE.B.8, 6.EE.C.9

Questions 1–4 review Unit 6 (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] Evaluate $4 + 2 \times 6$. Show the intermediate steps.

2. [Review] Write an expression for 5 less than n.

3. [Review] Evaluate $7x + 4$ for $x = 6$.

4. [Review] Are $7(x + 7)$ and $7x + 49$ equivalent for every x? Use a property or a counterexample.

5. [Current unit] Does $x = 6$ solve $8x + 3 = 43$? Show substitution.

6. [Current unit] Solve $x + 4 = 7$. Check in the original equation.

7. [Current unit] Solve $x - 2 = 1$. Check in the original equation.

Name _____ Date _____

Equations Inequalities and Relationships

Unit 7 Test

Standards assessed 6.EE.A.1, 6.EE.A.2c, 6.EE.A.2a, 6.EE.B.6, 6.EE.A.4, 6.EE.B.5, 6.EE.B.7, 6.EE.B.8, 6.EE.C.9

8. [Current unit] Solve 2 × x = 5. Check in the original equation.

9. [Current unit] Solve x ÷ 5 = 3/5. Check in the original equation.

10. [Current unit] 7 identical lengths of rope total 42 m. Let x be the length of one piece. Write and solve an equation, then check.

11. [Current unit] Let x be any real number. Write and graph: x is less than 35. Label the endpoint and shade the solution ray.

12. [Current unit] Which values in {7, 8, 9} satisfy x ≤ 8? Test each by substitution.

13. [Current unit] Let x be any real number. Write and graph: x is less than 9. Label the endpoint and shade the solution ray.

14. [Current unit] A shop charges $3 for each of n notebooks plus a single $6 delivery fee. Name the independent and dependent variables and write a cost rule. What does the cost at n = 0 mean in this model?

Name _____ Date _____

Equations Inequalities and Relationships

Unit 7 Test

Standards assessed 6.EE.A.1, 6.EE.A.2c, 6.EE.A.2a, 6.EE.B.6, 6.EE.A.4, 6.EE.B.5, 6.EE.B.7, 6.EE.B.8, 6.EE.C.9

15. [Current unit] For y = 5x + 5, make a table for x = 0, 1, 2, 4. Plot the ordered pairs and label both axes. Explain what happens to y each time x increases by 1.

16. [Current unit] For y = 4x + 5, make a table for x = 0, 1, 2, 3. Plot the ordered pairs and label both axes. Explain what happens to y each time x increases by 1.

17. [Current unit] Does x = 4 solve 7x + 7 = 35? Show substitution.

18. [Current unit] Solve x + 3/2 = 5. Check in the original equation.

19. [Current unit] Solve x - 5/2 = 1/2. Check in the original equation.

20. [Current unit] Solve 1 × x = 7/2. Check in the original equation.

Unit 7 Test

Equations Inequalities and Relationships

1. 16
Reasoning Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 16.

2. n - 5
Reasoning Start with n, then subtract the named amount.

3. 46
Reasoning Substitute first: 7 × 6 + 4 = 46.

4. Yes; distribution gives 7x + 49
Reasoning 7(x + 7) = 7x + 49. This matches.

5. No; left side = 51
Reasoning 8 × 6 + 3 = 51; compare with 43.

6. x = 3
Reasoning Subtract 4 on both sides. Then x = 3; substitution gives 7 on each side.

7. x = 3
Reasoning Add 2 on both sides. Then x = 3; substitution gives 1 on each side.

8. x = 5/2
Reasoning Divide by 2 on both sides. Then x = 5/2; substitution gives 5 on each side.

9. x = 3
Reasoning Multiply by 5 on both sides. Then x = 3; substitution gives 3/5 on each side.

10. 7x = 42; x = 6 m
Reasoning Divide the total by 7: 42 ÷ 7 = 6.

11. x < 35; open circle at 35, shade left
Reasoning “less than” means <; exclude the endpoint.

12. 7, 8
Reasoning Values below 8 work; the endpoint works too.

13. x < 9; open circle at 9, shade left
Reasoning “less than” means <; exclude the endpoint.

14. Independent n = notebooks; dependent C = cost; C = 3n + 6; C(0) = $6, the fee
Reasoning The chosen notebook count is the input; multiply it by price and add any fixed fee to get the cost.

15. (0, 5); (1, 10); (2, 15); (4, 25); y increases by 5
Reasoning Substitute each input into y = 5x + 5; x is horizontal and y vertical.

16. (0, 5); (1, 9); (2, 13); (3, 17); y increases by 4
Reasoning Substitute each input into y = 4x + 5; x is horizontal and y vertical.

17. Yes; left side = 35
Reasoning 7 × 4 + 7 = 35; compare with 35.

18. x = 7/2
Reasoning Subtract 3/2 on both sides. Then x = 7/2; substitution gives 5 on each side.

19. x = 3
Reasoning Add 5/2 on both sides. Then x = 3; substitution gives 1/2 on each side.

20. x = 7/2
Reasoning Divide by 1 on both sides. Then x = 7/2; substitution gives 7/2 on each side.