**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 8\_\_\_\_\_**

**Review Algebra**

**Multiple Choice**

*Identify the choice that best completes the statement or answers the question.*

\_\_\_\_ 1. Use this balance-scales model to solve for *x*.



|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. | 10 | b. | 6 | c. | 14 | d. | –10 |

\_\_\_\_ 2. In the left pan of a set of balance-scales, there are 2 identical unknown masses and a mass of 18 g.

The scales are balanced by adding a mass of 24 g to the right pan.

Find the value of each unknown mass.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. | 6 g | b. | 3 g | c. | 4 g | d. | –6 g |

\_\_\_\_ 3. Four more than three times a number is 16. Let *n* represent the number. Solve for *n*.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. | 13 | b. | 9 | c. | 4 | d. | 4 |

\_\_\_\_ 4. Write an equation for this sentence.

40 less than a number is 10.

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  | c. |  |
| b. |  | d. |  |

\_\_\_\_ 5. Write an equation for this situation.

Patricia has *p* posters. She sold 8 and has 18 left.

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  | c. |  |
| b. |  | d. |  |

\_\_\_\_ 6. Solve this equation. 4*y* + 8 = 36

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. | 1 | b. | 3 | c. | 7 | d. | 24 |

\_\_\_\_ 7. Solve this equation. 

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. | 54 | b. | 54 | c. | 15 | d. | –3 |

\_\_\_\_ 8. Solve this equation. 

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. | 83 | b. | –13 | c. | 56 | d. | 10 |

\_\_\_\_ 9. Expand. 

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. |  | b. |  | c. |  | d. |  |

\_\_\_\_ 10. Expand. 

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. |  | b. |  | c. |  | d. |  |

\_\_\_\_ 11. Which statement is correct?

i) **

ii) **

iii) **

iv) **

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. | iii | b. | i | c. | ii | d. | iv |

\_\_\_\_ 12. Solve this equation: 

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. |  | b. | –1 | c. | 140 | d. | 11 |

\_\_\_\_ 13. Solve this equation: 

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. |  | b. | – | c. | – | d. | –5 |

\_\_\_\_ 14. The price of an electronic puzzle was reduced by $7.

Mr. Murray bought 10 puzzles for his relatives. The total cost before taxes was $130.

What was the original price of the puzzle?

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. | $7.65 | b. | $20.00 | c. | $6.00 | d. | $127.00 |

\_\_\_\_ 15. April chose an integer. She subtracted 6, then multiplied the difference by 3.

The product was 3. What integer did April start with?

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. |  | b. | 6 | c. | –6 | d. | 7 |

**Short Answer**

16. Use this balance-scales model to solve for *x*.



17. Solve this equation. 

18. Solve this equation. 

19. Solve this equation: 

20. The perimeter of a rectangle is 46 cm. The rectangle has length 13 cm.

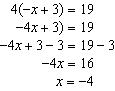
Write an equation to find the width, *w*, that involves the distributive property.

Solve the equation.

**Problem**

21. Carmel used the distributive property to solve this equation: 

Here’s her work.



a) Check Carmel’s work. Is her solution correct?

b) If your answer is yes, verify the solution. If your answer is no, describe the error, then correct it.

**review algebra**

**Answer Section**

**MULTIPLE CHOICE**

1. ANS: A PTS: 1 DIF: Easy

REF: 6.1 Solving Equations Using Models LOC: 8.PR2

TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding

2. ANS: B PTS: 1 DIF: Moderate

REF: 6.1 Solving Equations Using Models LOC: 8.PR2

TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding

3. ANS: D PTS: 1 DIF: Moderate

REF: 6.1 Solving Equations Using Models LOC: 8.PR2

TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding

4. ANS: A PTS: 1 DIF: Easy

REF: 6.2 Solving Equations Using Algebra LOC: 8.PR2

TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding

5. ANS: B PTS: 1 DIF: Easy

REF: 6.2 Solving Equations Using Algebra LOC: 8.PR2

TOP: Patterns and Relations (Variables and Equations)

KEY: Conceptual Understanding | Communication

6. ANS: C PTS: 1 DIF: Moderate

REF: 6.2 Solving Equations Using Algebra LOC: 8.PR2

TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding

7. ANS: A PTS: 1 DIF: Moderate

REF: 6.3 Solving Equations Involving Fractions LOC: 8.PR2

TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding

8. ANS: C PTS: 1 DIF: Moderate

REF: 6.3 Solving Equations Involving Fractions LOC: 8.PR2

TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding

9. ANS: D PTS: 1 DIF: Easy REF: 6.4 The Distributive Property

LOC: 8.PR2 TOP: Patterns and Relations (Variables and Equations)

KEY: Conceptual Understanding

10. ANS: B PTS: 1 DIF: Easy REF: 6.4 The Distributive Property

LOC: 8.PR2 TOP: Patterns and Relations (Variables and Equations)

KEY: Conceptual Understanding

11. ANS: D PTS: 1 DIF: Moderate REF: 6.4 The Distributive Property

LOC: 8.PR2 TOP: Patterns and Relations (Variables and Equations)

KEY: Conceptual Understanding

12. ANS: D PTS: 1 DIF: Easy

REF: 6.5 Solving Equations Involving the Distributive Property

LOC: 8.PR2 TOP: Patterns and Relations (Variables and Equations)

KEY: Conceptual Understanding

13. ANS: A PTS: 1 DIF: Moderate

REF: 6.5 Solving Equations Involving the Distributive Property

LOC: 8.PR2 TOP: Patterns and Relations (Variables and Equations)

KEY: Conceptual Understanding

14. ANS: B PTS: 1 DIF: Difficult

REF: 6.5 Solving Equations Involving the Distributive Property

LOC: 8.PR2 TOP: Patterns and Relations (Variables and Equations)

KEY: Conceptual Understanding | Problem-solving Skills

15. ANS: D PTS: 1 DIF: Difficult

REF: 6.5 Solving Equations Involving the Distributive Property

LOC: 8.PR2 TOP: Patterns and Relations (Variables and Equations)

KEY: Conceptual Understanding | Problem-solving Skills

**SHORT ANSWER**

16. ANS:

*x* = 3

PTS: 1 DIF: Moderate REF: 6.1 Solving Equations Using Models

LOC: 8.PR2 TOP: Patterns and Relations (Variables and Equations)

KEY: Problem-solving Skills

17. ANS:



PTS: 1 DIF: Moderate REF: 6.3 Solving Equations Involving Fractions

LOC: 8.PR2 TOP: Patterns and Relations (Variables and Equations)

KEY: Conceptual Understanding

18. ANS:



PTS: 1 DIF: Moderate REF: 6.3 Solving Equations Involving Fractions

LOC: 8.PR2 TOP: Patterns and Relations (Variables and Equations)

KEY: Conceptual Understanding

19. ANS:

*p* = 13

PTS: 1 DIF: Moderate REF: 6.5 Solving Equations Involving the Distributive Property

LOC: 8.PR2 TOP: Patterns and Relations (Variables and Equations)

KEY: Conceptual Understanding

20. ANS:



*w* = 10

The width of the rectangle is 10 cm.

PTS: 1 DIF: Moderate REF: 6.5 Solving Equations Involving the Distributive Property

LOC: 8.PR2 TOP: Patterns and Relations (Variables and Equations)

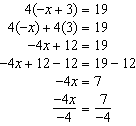
KEY: Conceptual Understanding | Problem-solving Skills

**PROBLEM**

21. ANS:

a) Carmel’s solution is incorrect.

b) Carmel did not multiply 3 by 4 in line 2.



*x* = 

PTS: 1 DIF: Difficult REF: 6.5 Solving Equations Involving the Distributive Property

LOC: 8.PR2 TOP: Patterns and Relations (Variables and Equations)

KEY: Procedural Knowledge | Communication