Pre-Test Unit 5: Solving Equations

No calculator necessary. Please do not use a calculator.

Solve the following equations for the given variable. There may be a single solution, infinite solutions, or no solutions. *(5 pts; 2 pts for simplification, 2 pts for inverse operation, 1 pt for answer)*

1. $7g + 3g - 10 + 3 = 43$

2. $4(x + 2) - \frac{1}{2}x = 22$

3. $6y + 9 - 7 = 4y + 12$

4. $6(b + 2) = 6b + 13$

5. $6y + 9 - \frac{4}{3}y = 4y + \frac{2}{3}y + 12$

6. $6(b + 2) = 6b + 12$

Write and solve an equation for the following situations. *(5 pts; 2 pts for correct equation, 2 pts for correct simplification and inverse operations, 1 pt for answer)*

7. A man buys four books from the store and also buys a Preferred Reader membership for $20. Later that day, he goes back and buys five more books. He also got a $5 discount using his new membership. If he spent a total of $87 at the bookstore, how much did each book cost assuming every book cost the same amount?

8. A girl bought two packs of gum from the store. Later she thought she would need some more gum and went back to the store to buy three more packs of gum. If she paid a total of $5.70 for gum, how much was each pack of gum?

9. A store discounted the price of Doritos $0.35 and then a man bought 5 bags. If he paid a total of $12.70 for the bags of chips, how much was each bag originally?

10. A man bought 4 cups of coffee and left a $7 tip. A woman bought 8 cups of coffee and only left a $2 tip. If they paid the same amount, how much was each cup of coffee?

Answer the following questions about creating equations. *(5 pts; partial credit at teacher discretion)*

11. Create and solve a multi-step equation with exactly one solution.

12. How would you know that your equation has exactly one solution without actually solving it?

13. Create and solve a multi-step equation with no solutions.

14. How would you know that your equation has no solutions without actually solving it?

15. Create and solve a multi-step equation with infinite solutions.

16. How would you know that your equation has infinite solutions without actually solving it?

Solve the following equations. *(5 pts; 2 pts for correct inverse operation, 3 pts for answer or answers)*

17. $x^2 = 64$ 18. $x^2 = -16$

19. $x^3 = 64$ 20. $x^3 = -27$