

MINISTRY OF EDUCATION

Badaa Al Mutawa School

M2L3 Solving Multi-Step Equations

Student Name:	_____
Grade:	9 Advanced
Date:	_____

Subject: Mathematics

Subject Teacher: Abdulkader Amro

M2L3 Solving Multi-Step Equations— MULTIPLE-CHOICE ASSESSMENT

Choose the one correct answer for each question. Show your work when required.

Part I — Solve Using Properties of Equality

1. Solve the equation: $3t + 7 = -8$. What is t ?

- A. -5
- B. 5
- C. 3
- D. -3

2. Solve the equation: $8 = 16 + 8n$. What is n ?

- A. 1
- B. -1
- C. -2
- D. 2

3. Solve the equation: $-34 = 6m - 4$. What is m ?

- A. 4
- B. -4
- C. -5
- D. 5

4. Solve the equation: $9x + 27 = -72$. What is x ?

- A. 9
- B. 11
- C. -11
- D. -9

5. Solve the equation: $\frac{y}{5} - 6 = 8$. What is y?

- A. 60
- B. 75
- C. 70
- D. 65

6. Solve the equation: $\frac{f}{-7} - 8 = 2$. What is f?

- A. -70
- B. 42
- C. -42
- D. 70

7. Solve the equation: $1 + \frac{f}{9} = 4$. What is f?

- A. 36
- B. 27
- C. -27
- D. 18

8. Solve the equation: $\frac{k}{3} + 4 = -16$. What is k?

- A. -48
- B. -60
- C. -36
- D. 60

9. Solve the equation: $\frac{n-2}{7} = 2$. What is n?

- A. 16
- B. 18
- C. 12
- D. 14

10. Solve the equation: $14 = \frac{6+z}{-2}$. What is z?

- A. -34
- B. 34
- C. -20
- D. -28

11. Solve the equation: $-11 = \frac{q-5}{6}$. What is q?

- A. -66
- B. -61
- C. -71
- D. 61

12. Solve the equation: $\frac{22-w}{3} = -7$. What is w?

- A. 21
- B. -21
- C. 43
- D. -43

Part II — Write and Solve an Equation

13. Ricardo spent half of his allowance on school supplies, then \$5.25 on a snack, and had \$22.50 left. Which equation and solution give his allowance a?

- A. $\frac{a}{2} - 5.25 = 22.50$; a = \$55.50
- B. $a - 5.25 = 22.50$; a = \$27.75
- C. $\frac{a}{2} + 5.25 = 22.50$; a = \$34.50
- D. $2a - 5.25 = 22.50$; a = \$13.875

14. Liza bought a \$1.95 drink, a \$30 ticket, and a \$7.20 ring. She then spent two-thirds of the remaining money on a speaker and had \$38.50 left. Which equation and solution give her original earnings m?

- A. $m - 46.35 = 38.50$; m = \$84.85
- B. $\frac{m-39.15}{3} = 38.50$; m = \$154.65
- C. $\frac{2}{3}m - 39.15 = 38.50$; m = \$116.48
- D. $m - 39.15 = 38.50$; m = \$77.65

15. Henry sets aside 10 dog treats and distributes the rest equally among 15 dogs. Each dog receives 4 treats. Which equation and solution give the original number t of treats?

- A. $\frac{t}{15} - 10 = 4$; t = 210
- B. $t + 10 = 15(4)$; t = 70
- C. $\frac{t-10}{15} = 4$; t = 70
- D. $t - 10 = 15 + 4$; t = 29

16. A basketball team averaged 63 points over 3 games. The first two games had the same score, 6 more than the third game. Which equation and scores are correct?

- A. $3x - 6 = 63$; 23, 23, 17
- B. $2x + (x - 6) = 189$; 65, 65, 59
- C. $2x + (x + 6) = 189$; 61, 61, 67
- D. $x + (x - 6) = 189$; 97.5, 97.5, 91.5

17. Micah's adult height is one less than twice his height h at age 2. His adult height is 71 inches. Which equation and solution are correct?

- A. $2h - 71 = 1$; $h = 35$
- B. $h - 1 = 71$; $h = 72$
- C. $2h - 1 = 71$; $h = 36$
- D. $2h + 1 = 71$; $h = 35$

Part III — Solve for x ($a \neq 0$)

18. Solve for x , assuming $a \neq 0$: $ax + 3 = 23$.

- A. $x = \frac{23}{a}$
- B. $x = 20a$
- C. $x = \frac{20}{a}$
- D. $x = \frac{3}{a}$

19. Solve for x , assuming $a \neq 0$: $4 = ax - 14$.

- A. $x = \frac{18}{a}$
- B. $x = \frac{14}{a}$
- C. $x = \frac{10}{a}$
- D. $x = \frac{-18}{a}$

20. Solve for x , assuming $a \neq 0$: $ax - 5 = 19$.

- A. $x = \frac{14}{a}$
- B. $x = \frac{24}{a}$
- C. $x = \frac{5}{a}$
- D. $x = \frac{-24}{a}$

21. Solve for x, assuming $a \neq 0$: $6 + ax = -29$.

- A. $x = \frac{-23}{a}$
- B. $x = \frac{-35}{a}$
- C. $x = \frac{29}{a}$
- D. $x = \frac{35}{a}$

22. Solve for x, assuming $a \neq 0$: $\frac{8}{ax} - 5 = -3$.

- A. $x = \frac{2}{a}$
- B. $x = \frac{4}{a}$
- C. $x = 4a$
- D. $x = \frac{-4}{a}$

23. Solve for x, assuming $a \neq 0$: $18 - ax = 42$.

- A. $x = \frac{24}{a}$
- B. $x = \frac{-24}{a}$
- C. $x = \frac{18}{a}$
- D. $x = \frac{-42}{a}$

24. Solve for x, assuming $a \neq 0$: $5 = \frac{5}{ax} + 1$.

- A. $x = \frac{5}{4a}$
- B. $x = \frac{5a}{4}$
- C. $x = \frac{4a}{5}$
- D. $x = \frac{4}{5a}$

25. Solve for x, assuming $a \neq 0$: $-3 = ax + 11$.

- A. $x = \frac{14}{a}$
- B. $x = \frac{-14}{a}$
- C. $x = \frac{8}{a}$
- D. $x = \frac{-8}{a}$

26. Solve for x , assuming $a \neq 0$: $-7 = -ax - 16$.

- A. $x = \frac{-23}{a}$
- B. $x = \frac{-9}{a}$
- C. $x = \frac{23}{a}$
- D. $x = \frac{9}{a}$

Part IV — Mixed Exercises

27. Solve: $3x + 8 = 29$.

- A. $x = 7$
- B. $x = 3$
- C. $x = -7$
- D. $x = 9$

28. Solve: $\frac{a}{6} - 5 = 9$.

- A. $a = 24$
- B. $a = 84$
- C. $a = 54$
- D. $a = 14$

29. Solve: $\frac{5r}{2} - 6 = 19$.

- A. $r = 8$
- B. $r = 5$
- C. $r = 10$
- D. $r = 12$

30. Solve: $\frac{n}{3} - 8 = -2$.

- A. $n = 18$
- B. $n = 30$
- C. $n = 6$
- D. $n = -18$

31. Solve: $5 + \frac{x}{4} = 1$.

- A. $x = -4$
- B. $x = -16$
- C. $x = 4$
- D. $x = 16$

32. Solve: $\frac{-h}{3} - 4 = 13$.

- A. $h = -51$
- B. $h = 39$
- C. $h = 51$
- D. $h = -39$

33. Solve: $5(1 + n) = -5$.

- A. $n = -6$
- B. $n = -2$
- C. $n = 0$
- D. $n = 2$

34. Solve: $-27 = -6 - 3p$.

- A. $p = 9$
- B. $p = 7$
- C. $p = -7$
- D. $p = -9$

35. Solve: $\frac{-q}{6} + 5 = 2$.

- A. $q = -18$
- B. $q = -3$
- C. $q = 18$
- D. $q = 3$

Part V — Reasoning

36. A number is divided by 2, and then the quotient is increased by 8. The result is 33. Which equation and solution are correct?

- A. $\frac{n}{2} + 8 = 33$; $n = 50$
- B. $2n + 8 = 33$; $n = 12.5$
- C. $n + \frac{8}{2} = 33$; $n = 29$
- D. $\frac{n}{2} - 8 = 33$; $n = 82$

37. Two is subtracted from a number, and then the difference is divided by 3. The result is 30. Which equation and solution are correct?

- A. $n - \frac{2}{3} = 30$; $n = 32.67$
- B. $\frac{n-2}{3} = 30$; $n = 92$
- C. $3(n - 2) = 30$; $n = 12$
- D. $\frac{n+2}{3} = 30$; $n = 88$