

Integrated Algebra 2 Practice Evaluation A1 – Form 1

Lesson 2.2 (Solving Linear Equations) & Lesson 2.4 (Linear Inequalities)

Ground Rules for Test Completion

1. Present your work in a neat and organized manner. Use complete sentences whenever you are asked to make a statement.
2. SHOW YOUR WORK: Partial credit will be awarded on the basis of the work shown.
3. Make sure you answer ALL parts of problems.



1. [24] Solve each of the equations below by **isolating the variable** ; and then **show a check of your solution**. **NOTE: No credit will be awarded unless work is shown.**

a. Solve for x : $4x = 8$

b. Solve for s : $\frac{1}{5}s = 9$

c. Solve for m : $7m + 11 = -38$

d. Solve for w : $12 - 6w = 30$

2. [18] Solve any 3 of the 4 equations below by **isolating the variable**. (The remaining problem may be done for extra credit.)

- If there is a **unique solution**, **show a check of your solution**.
- If there is **NO solution**, or the solution is **ALL REAL Numbers**, **state so..**
- **NOTE: No credit will be awarded unless work is shown.**

a. Solve for y : $25 + 10y = 5(2y - 11)$

b. Solve for k : $-(-21 + 3k) = 11k - 18$

c. Solve for b : $-\frac{1}{5}(2b - 8) = \frac{8}{5} - \frac{2}{5}b$

d. Solve for x : $4x = 8$ Solve for q : $3[(\frac{5}{2})q + 1] = (\frac{5}{6})(12 - 2q)$

3. [5] Solve for x : $4x = 8$ Solve for z : $7x - 4z = -16$

4. [5]The formula for the area of a triangle is $A = \frac{1}{2}bh$, where b is the base and h is the height of the triangle. Solve this formula for h .

5. [24] (1) Solve each of the inequalities below **algebraically**. (2) Graph each **solution set** on a number line – **be sure to label all critical points**. **NOTE: No credit will be awarded unless work is shown.**

a. Solve for x : $4x = 8$ Solve for p : $10p + 5 \geq -25$
Solve for t : $7 - 2t < 3$

b. Solve for x : $4x = 8$

c. Solve for x : $4x = 8$ Solve for m : $(-\frac{2}{3})m > -6$
Solve for r : $6r - 32 \leq 16$

d. Solve for x : $4x = 8$

6. [14] (1) Solve each of the combined inequalities below **algebraically**. (2) Graph each **solution set** on a number line – **be sure to label all critical points**. **NOTE: No credit will be awarded unless work is shown.**

a. Solve for x : $4x = 8$ Solve for x : $11 > -x + 3 \geq -5$
Solve for y : $-9 \leq 5y - 29 \leq 16$

b. Solve for x : $4x = 8$

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7. [5] Tim plans to buy 10 lobsters weighing $1\frac{1}{4}$ pounds each. He knows that he will have to pay between \$4.79 and \$5.29 per pound. Write a compound inequality which represents the cost, c , that Tim can expect to pay for the lobsters. **Round the costs to the nearest cent.**

8. [5] Lily has \$55 in her purse. She plans to do some shopping for her son's graduation. She needs \$3.00 for parking and \$5.00 for gas. Write an inequality to represent the amount, A , she can spend and still have enough money to pay for parking and gas.

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ANSWER KEY with SOLUTIONS TO SELECTED PROBLEMS

1a. $4x \div 4 = 8 \div 4 \rightarrow x = 2$; Check: $4(2) = ? 8 \rightarrow 8 = 8 \checkmark$

1b. $5[(1/5)s] = [9]5 \rightarrow 1s = 45$; Check: $(1/5)[45] = ? 9 \rightarrow 9 = 9 \checkmark$

1c. $7m + 11 = -38$

$$\underline{-11} \quad \underline{-11}$$

$$\frac{7m}{7} = \frac{-49}{7}$$

$$m = -7$$

Chk: $7(-7) + 11 = -38$

$$-49 + 11 = -38 \rightarrow -38 = -38 \checkmark$$

1d. $12 - 6w = 30$

$$\underline{-12} \quad \underline{-12}$$

$$\frac{-6w}{-6} = \frac{18}{-6}$$

$$w = -3$$

Chk: $12 - 6(-3) = 30$

$$12 - (-18) = 30 \rightarrow 30 = 30 \checkmark$$

2a. $25 + 10y = 10y - 55 \rightarrow 25 + 10y - 10y = 10y - 10y - 55 \rightarrow 25 = -55$; However, since 25 is never equal to -55, **there is no solution.**

2b. $21 + -3k = 11k - 18 \rightarrow 21 + -3k + 3k = 11k + 3k - 18 \rightarrow 21 = 14k - 18 \rightarrow 14k - 18 = 21 \rightarrow$

$$14k - 18 + 18 = 21 + 18 \rightarrow 14k = 39 \rightarrow \frac{14k}{14} = \frac{39}{14} \rightarrow k = \frac{39}{14}$$
 ;

Check: $-(-21 + 3[\frac{39}{14}]) = 11[\frac{39}{14}] - 18 \rightarrow -(-\frac{294}{14} + \frac{117}{14}) = \frac{429}{14} - \frac{252}{14} \rightarrow \frac{177}{14} = \frac{177}{14} \checkmark$

2c. $5[(-1/5)(2b - 8)] = [8/5 - (2/5)b]5 \rightarrow -2b + 8 = 8 - 2b \rightarrow -2b + 2b + 8 = 8 - 2b + 2b \rightarrow 8 = 8$; Thus, since 8 always equals 8, **the solution is all real numbers.**

2d. $6\{3[(5/2)q + 1]\} = \{(5/6)(12 - 2q)\}6 \rightarrow 45q + 18 = 60 - 10q \rightarrow 55q = 42 \rightarrow q = \frac{42}{55}$;

Check: $3[(5/2)[\frac{42}{55} + 1]] = (5/6)(12 - 2[\frac{42}{55}]) \rightarrow 3[\frac{32}{11}] = (5/6)(\frac{576}{55}) \rightarrow \frac{96}{11} = \frac{96}{11} \checkmark$

3. $7x - 7x - 4z = -16 - 7x \rightarrow -4z/4 = \frac{(-16 - 7x)}{4} \rightarrow z = \frac{(-16 - 7x)}{4}$ or $z = (\frac{7}{4})x + 4$

4. $2[(1/2)bh] = [A]2 \rightarrow bh = 2A \rightarrow h = \frac{2A}{b}$

5a. $10p \geq -30 \rightarrow p \geq -3$;



5b. $-2t < -4 \rightarrow t > 2$;



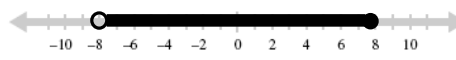
5c. $m < 9 \rightarrow$;



5d. $6r \leq 48 \rightarrow r \leq 8$;



6a. $11 - 3 > -x + 3 - 3 \geq -5 - 3 \rightarrow 8 > -x \geq -8 \rightarrow -8 < x \leq 8$;



6b. $-9 + 29 \leq 5y - 29 + 29 \leq 16 + 29 \rightarrow 20 \leq 5y \leq 45 \rightarrow 4 \leq y \leq 9$;



7. $\$59.88 \leq c \leq \66.13

8. $A \leq \$47$