

ALGEBRA I MIDTERM REVIEW

Directions: Complete this midterm review by showing ALL work. The answers for each problem are posted on the website (for the purpose of checking your answers). Questions with ONLY answers will not be accepted.

This review is due on the day of the midterm. If you exempting the midterm, you may turn it in by the end of midterm week or sooner.

Section 1: Expressions

1. Write $x \div 15$ in words.	2. Evaluate the expression $x + y$ for $x = 3$ and $y = -8$.
3. Evaluate the expression yz for $y = 12$ and $z = -6$.	4. Simplify 3^2 .
5. Simplify 5^{-3} .	6. Simplify $(-6)^0$.
7. Simplify the expression $216^{\frac{1}{3}}$.	8. Simplify the expression $512^{\frac{2}{3}}$.
9. Find the degree of the monomial. $8x^4y^5$	10. Find the degree of the polynomial. $3x^3y^8 + 5xy + x^6$
11. Write the polynomial in standard form. $4y^3 - 12y^2 + 6x^9$	12. What is the leading term of the polynomial? $4y^3 - 12y^2 + 6x^9$

13. Classify the polynomial according to its degree and number of terms.
 $3x^7y^2 + 6xy + 8x^{11} - 7y$

14. Simplify the expression.
 $4x^2 - 7x + 6 + 2x^2 + 3x - 9$

15. Add.
 $(7x - 12) + (2x^2 - 5x - 11)$

16. Subtract.
 $(9x^4 + 2x^3) - (6x^3 - 5x - 11x^4)$

17. Subtract.
 $(8x^2 - 3x^3) - (2x^3 + 7x - 9x^4)$

18. Multiply.
 $(x - 7)(x + 3)$

19. Multiply.
 $(2x - 9)(x + 7)$

20. Multiply.
 $(3x - 4)(2x^2 - 3x - 1)$

21. Write the expression $2^{\frac{3}{7}}$ in radical form.

22. Write the expression $5^{\frac{2}{3}}$ in radical form.

Section 2: Equations and Inequalities

23. Solve $p - 8 = 97$

24. Solve $-15 + m = -32$

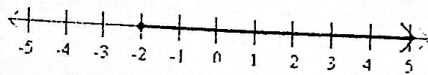
25. Solve $\frac{w}{4} = 32$

26. Solve $-8b - 3 = -75$

27. Solve $7a + 21 = 4a - 30$

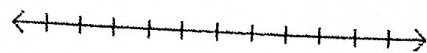
28. Solve $-11x - 22 = 14x + 15$

29. Write an inequality shown by the graph:



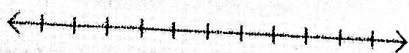
30. Solve the inequality and graph the solution:

$$\frac{a}{5} + 4 \leq 21$$



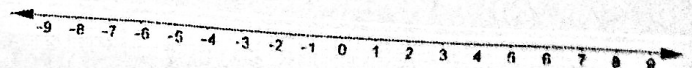
31. Solve the inequality and graph the solution:

$$6m + 2 < 5m - 4$$

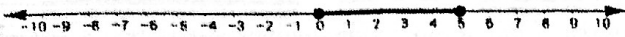


32. Solve the compound inequality and graph the solutions:

$$7 \leq 5x + 2 < 27$$

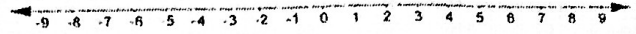


33. Write the compound inequality shown by the graph:



34. Solve the compound inequality and graph the solutions:

$$-2x \geq 14 \text{ or } 6 - 2x < 12$$



Section 3: Functions

35. Express the coordinate pairs as a mapping. Is the relation a function?

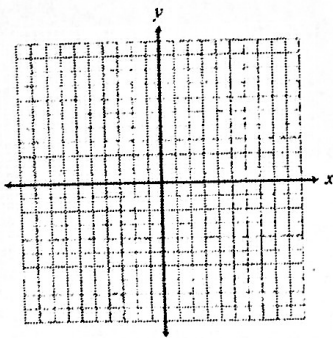
$$\{(0,1), (1,6), (2,5), (5,4)\}$$

36. Express the coordinate pairs as a table. Is the relation a function?

$$\{(1,-2), (2,3), (-4,6), (-1,7)\}$$

37. Express the coordinate pairs as a graph. Is the relation a function?

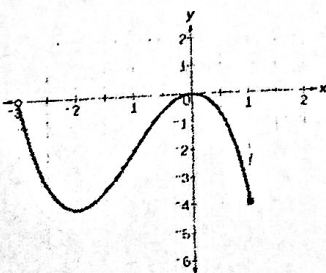
$$\{(3,1), (4,1), (5,1), (7,1)\}$$



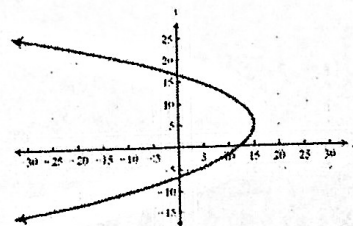
38. Give the domain of the relation.

x	y
21	3
14	2
28	4
7	1

39. Give the range of the relation:



40. Tell whether the relation is a function.



41. Identify the independent and dependent variables in the situation.

The flower grows 3 inches for every 5 days that does by.

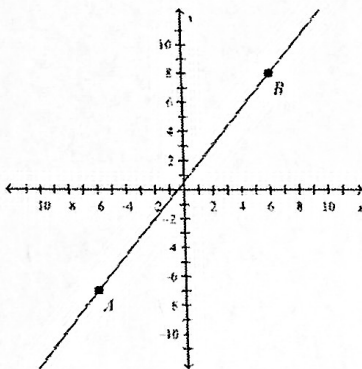
42. Identify the independent and dependent variables in the situation.

Jamie gets \$30 every time she babysits her little sister.

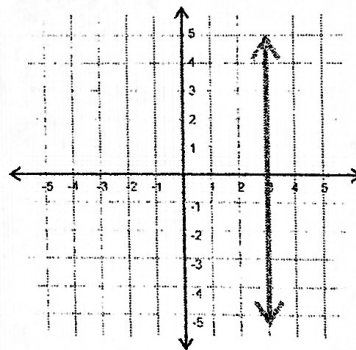
43. For $f(x) = -5x - 2$, find $f(x)$ when $x = -3$.

Section 4: Linear Functions

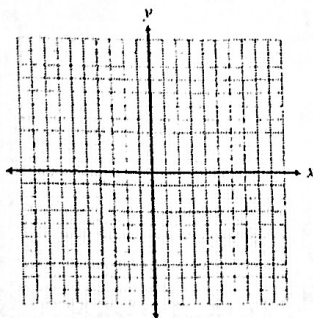
44. Find the slope of the line.



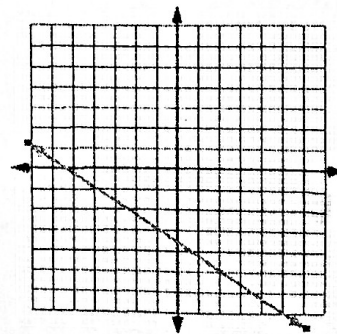
45. Find the slope of the line.



46. Graph the function $y = \frac{3}{4}x - 2$.



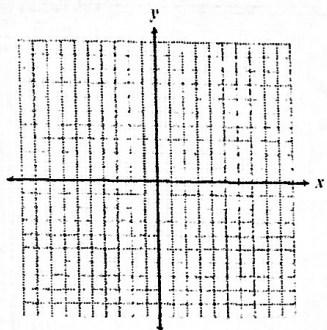
47. Determine the type of slope modeled by the line.



48. Find the slope of the line that contains the points (3,5) and (-2,7).

49. Find the slope of the line that contains the points (10,5) and (6,15).

50. Graph the line with the slope of -4 and a y-intercept of 3.



51. Write the equation that describes the line with the slope of $\frac{-5}{2}$ and a y-intercept of 8.

52. Write the equation $-3x - 7y = -35$ in slope-intercept form.

53. Write the equation $6x - 8y = -64$ in slope-intercept form. Then graph the line.

