Acad. Algebra 1 Midterm Review

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1) Midterm covers chapters 1-6, 7.1, and 7.6
2) Start preparing NOW !!!
3) Review all of your tests
4) Make sure you can do all of the problems on the WS. Answers posted on my web sight.
5) For exam, bring a calculator and a 3x5 handwritten index card (both sides)

See me for extra help or questions, Ms. Groves

Solve the equation.

29. $\frac{m}{-6} = 8$

30. $17 = 4x - 7$

31. $9 - \frac{n}{3} = 28$

32. $16w - 10w + 13 = -5$

33. $4h - 13 = 7h + 2$

34. $\frac{2}{5}(25z - 30) = \frac{3}{4}(12z + 16)$

The perimeter P of a rectangle is given by the formula $P = 2\ell + 2w$ where ℓ is the length and w is the width.

35. Solve the formula for ℓ.

36. Use the rewritten formula to find the length of a rectangle with a width of 9 inches and a perimeter of 40 inches.

Solve the proportion.

37. $\frac{x}{8} = \frac{12}{32}$

38. $\frac{12}{3w} = \frac{36}{63}$

39. $\frac{21}{15} = \frac{3k - 2}{5}$

40. A high school track team has 40 athletes. Eleven members of the team run hurdles. What percent of the team runs hurdles?

Write the equation in function form.

41. $-12x + 3y = 15$

42. $5x = -10y + 30$

Find the slope of the line that passes through the points.

43. $(-7, 3)$ and $(3, 8)$

44. $(-2, -9)$ and $(-5, 6)$

CHAPTERS 1–7 Cumulative Test

For use after Chapters 1–7

Evaluate the expression.

1. $7 + 6^2 \div 3$

2. $4 \cdot 5^2 - 18$

3. $4[32 - (17 - 12)^2]$

4. $\frac{2}{3}[(5 + 3)^2 - 31]$

5. $3(5m - 4);\ m = -2$

6. $9x^2 - 4;\ x = 3$

Write an algebraic expression, an equation, or an inequality.

7. The sum of 5 times a number x and 17

8. The difference of 21 and the product of 5 and a number y is less than 7.

9. The quotient of 75 and the sum of a number z and 2 is 25.

10. A family goes to an amusement park. Adult tickets cost \$21. Children under 10 years of age pay \$15. Write an algebraic expression for the total cost. Then find the total cost of 4 adult tickets and 3 children's tickets.

11. Order the numbers from least to greatest: $-1.6, \sqrt{4}, 0, 3.1, -\sqrt{5}$.

What is an integer?

Find the sum, difference, product, or quotient.

12. $-11 + (-7)$

13. $27 + (-32)$

14. $17 - (-6)$

15. $-\frac{2}{3} - \frac{1}{12}$

16. $15(-6)$

17. $3(-7)(-2)$

18. $-21 \div (-7)$

19. $-14 \div \frac{2}{7}$

20. $\frac{3}{5} \div (-30)$

Evaluate the expression.

21. $-5x + 14 - 2x^2$ when $x = 3$

22. $11 + \frac{18}{y}$ when $y = 3$

23. $7(3w - 5)$ when $w = 4$

24. $15 + |1 - k|$ when $k = 8$

Simplify the expression.

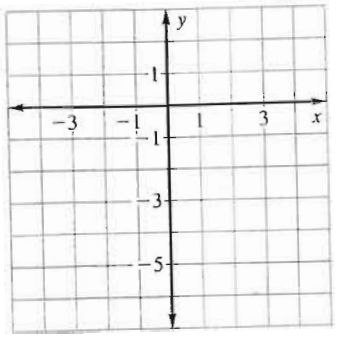
25. $-3(-x + 6)$

26. $7(3y - 4) - 18y$

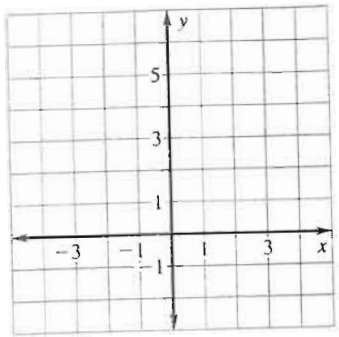
27. $\frac{-8w + 12}{-4}$

Graph the equation.

45. $y = \frac{1}{4}x - 5$

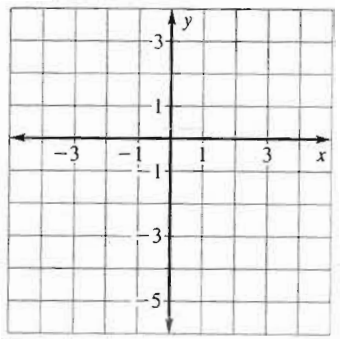


46. $2x + 5y = 20$



47. The price p (in dollars) varies directly with the number of admissions a to a museum. The museum charges \$12 for 5 student admissions. Write a direct variation equation that relates p and a. Then find the total admission price for 30 students.

48. Graph the function $h(x) = x - 4$. *Compare* the graph with the graph of $f(x) = x$.



Write an equation in slope-intercept form of the line with the given characteristics.

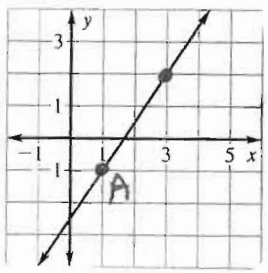
49. slope 3; y-intercept 5

50. $m = -2$; passes through $(-1, 5)$

51. passes through (3, 2) and $(-5, -8)$

52. perpendicular to $y = -3x + 1$; passes through (2, 2)

53. Write an equation in



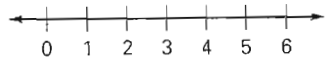
(a) POINT SLOPE WITH POINT A.

(b) SLOPE INTERCEPT.

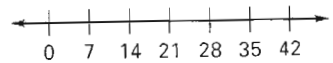
(c) STANDARD FORM

Solve the inequality, if possible. Graph your solution.

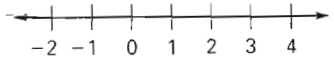
55. $x + 5.1 \geq 9.4$



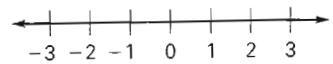
56. $\frac{x}{-7} < -3$



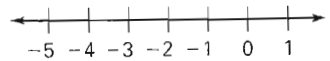
57. $5 + 2x \leq -4x + 23$



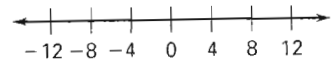
58. $-5 < 3x + 1 < 4$



59. $-2x > 9$ *or* $4x + 7 > 9$



60. $|x + 1| - 3 > 8$

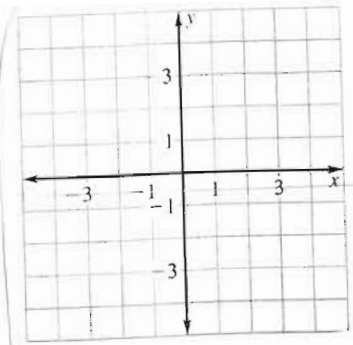


Solve the equation, if possible.

61. $3|x - 2| + 2 = 17$

62. $7|4x + 2| + 6 = 4$

64 SOLVE SYSTEM BY GRAPHING: $2x + 5y = -10$, $5y = -9x + 25$



Tell whether the linear system has *one solution*, *no solution*, or *infinitely many solutions*.

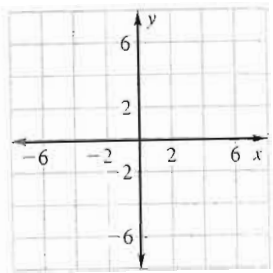
68. $4x - 3y = 6$
$8x = 6y + 10$

69. $3x + 7y = 8$
$21y = -9x + 24$

70. Graph the system of linear inequalities.

$y > \frac{4}{7}x - 2$

$y < 3x + 4$



MIDTERM STUDY TIPS

1. Review your tests
2. MAKE SURE you can do these problems
3. Prepare a 3x5 index card, handwritten, both sides
4. Don't forget a calc.

Solve the equation.

29. $\frac{m}{-6} = 8$ (-48)

30. $17 = 4x - 7$ (6)

31. $9 - \frac{n}{3} = 28$ (-57)

32. $16w - 10w + 13 = -5$ (-3)

33. $4h - 13 = 7h + 2$ (-5)

34. $\frac{2}{5}(25z - 30) = \frac{3}{4}(12z + 16)$ (24)

The perimeter P of a rectangle is given by the formula $P = 2\ell + 2w$ where ℓ is the length and w is the width.

35. Solve the formula for ℓ. $\ell = \frac{P - 2w}{2}$

36. Use the rewritten formula to find the length of a rectangle with a width of 9 inches and a perimeter of 40 inches. $\ell = 11$ in — DON'T FORGET UNITS

Solve the proportion.

37. $\frac{x}{8} = \frac{12}{32}$ $x = 3$

38. $\frac{12}{3w} = \frac{36}{63}$ $w = 7$

39. $\frac{21}{15} = \frac{3k - 2}{5}$ $15(3k-2) = 5(21)$ $k = 3$

40. A high school track team has 40 athletes. Eleven members of the team run hurdles. What percent of the team runs hurdles?

$11/40 = .275 = 27.5\%$

Write the equation in function form. replace y with f(x)

41. $-12x + 3y = 15$ $y = 4x + 5$ $f(x) = 4x + 5$

42. $5x = -10y + 30$ $y = -\frac{1}{2}(x) + 3$ $f(x) = -\frac{1}{2}x + 3$

Find the slope of the line that passes through the points.

43. $(-7, 3)$ and $(3, 8)$ $m = 1/2$

44. $(-2, -9)$ and $(-5, 6)$ $m = -5$

CHAPTERS 1–7 Cumulative Test

For use after Chapters 1–7

Evaluate the expression.

1. $7 + 6^2 \div 3$ (19)

2. $4 \cdot 5^2 - 18$ (82)

3. $4[32 - (17 - 12)^2]$ (28)

4. $\frac{2}{3}[(5 + 3)^2 - 31]$ (22)

5. $3(5m - 4)$; $m = -2$ (-42)

6. $9x^2 - 4$; $x = 3$ (77)

Write an algebraic expression, an equation, or an inequality.

7. The sum of 5 times a number x and 17 $5x + 17$

8. The difference of 21 and the product of 5 and a number y is less than 7. $21 - 5y < 7$

9. The quotient of 75 and the sum of a number z and 2 is 25. $\frac{75}{z+2} = 25$

10. A family goes to an amusement park. Adult tickets cost $21. Children under 10 years of age pay $15. Write an algebraic expression for the total cost. Then find the total cost of 4 adult tickets and 3 children's tickets. $21A + 15C$ $\$129$

11. Order the numbers from least to greatest: $-1.6, \sqrt{4}, 0, 3.1, -\sqrt{5}$. $-\sqrt{5}, -1.6, 0, \sqrt{4}, 3.1$

What is an integer? NO FRACTIONS ...-2, -1, 0, 1, 2...

Find the sum, difference, product, or quotient.

12. $-11 + (-7)$ (-18)

13. $27 + (-32)$ (-5)

14. $17 - (+6)$ (23)

15. $-\frac{2}{3} - \frac{1}{12}$ $-3/4$

16. $15(-6)$ -90

17. $3(-7)(-2)$ 42

18. $-21 \div (-7)$ 3

19. $-14 \div \frac{2}{7}$ -49

20. $\frac{3}{5} \div (-30)$ $-\frac{1}{50}$

Evaluate the expression.

21. $-5x + 14 - 2x^2$ when $x = 3$ (-19)

22. $11 + \frac{18}{y}$ when $y = 3$ (17)

23. $7(3w - 5)$ when $w = 4$ (49)

24. $15 + |1 - k|$ when $k = 8$ (22)

Simplify the expression.

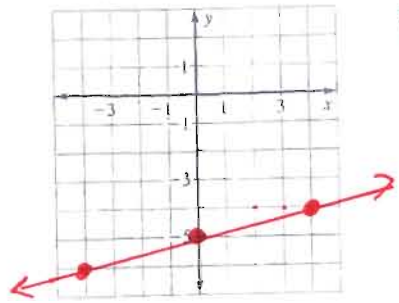
25. $-3(-x + 6)$ $3x - 18$

26. $7(3y - 4) - 18y$ $3y - 28$

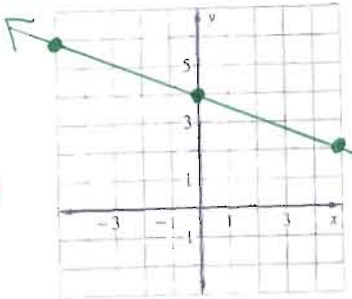
27. $\frac{-8w + 12}{-4}$ $2w - 3$

Graph the equation.

45. $y = \frac{1}{4}x - 5$ $m = \frac{1}{4}$ $b = -5$



46. $2x + 5y = 20$ $x = 10$ $y = 4$ Want fit



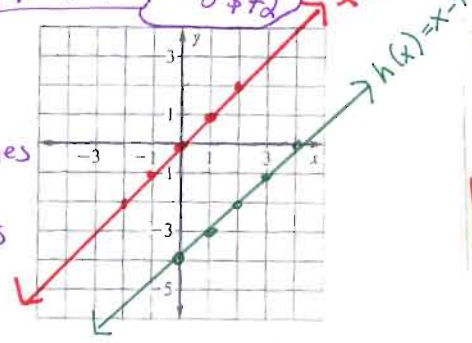
$y = -\frac{2}{5}x + 4$

47. The price p (in dollars) varies directly with the number of admissions a to a museum. The museum charges \$12 for 5 student admissions. Write a direct variation equation that relates p and a. Then find the total admission price for 30 students.

Constant $12/4 = 2.4$ → DV EQ: $p = 2.4a$ 30 students charged \$72

48. Graph the function $h(x) = x - 4$. *Compare* the graph with the graph of $f(x) = x$.

- Same slope so // lines
- y-intercept shifts h(x) down 4 units



$f(x) = x$

$h(x) = x - 4$

Write an equation in slope-intercept form of the line with the given characteristics.

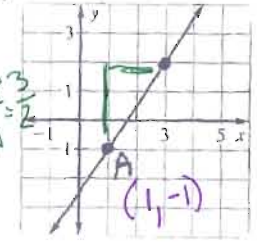
49. slope 3; y-intercept 5 $y = 3x + 5$

50. $m = -2$; passes through $(-1, 5)$ $y - 5 = -2(x + 1)$ $y = -2x + 3$

51. passes through (3, 2) and (−5, −8)

52. * perpendicular to $y = -3x + 1$; passes through (2, 2) SEE SIDE*

53. Write an equation in



M = Rise/Run = 3/2

(a) POINT SLOPE WITH POINT A: $y + 1 = \frac{3}{2}(x - 1)$

(b) SLOPE INTERCEPT: $y = \frac{3}{2}x - \frac{5}{2}$ Leave slope as improper fraction. Reduce y int -2.5 or $-2\frac{1}{2}$

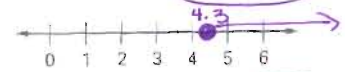
(c) STANDARD FORM

2 answers

$-3x + 2y = -5$ $3x - 2y = 5$

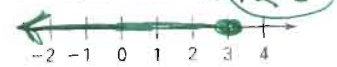
Solve the inequality, if possible. Graph your solution.

55. $x + 5.1 \geq 9.4$ $x \geq 4.3$

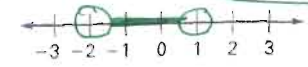


56. $\frac{x}{-7} < -3$ $x > 21$

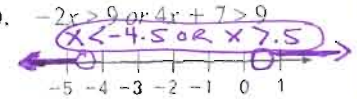
57. $5 + 2x \leq -4x + 23$ $x \leq 3$



58. $-5 < 3x + 1 < 4$ $-2 < x < 1$



59. $-2x > 9$ or $4x + 7 > 9$ $x < -4.5$ OR $x > 0.5$



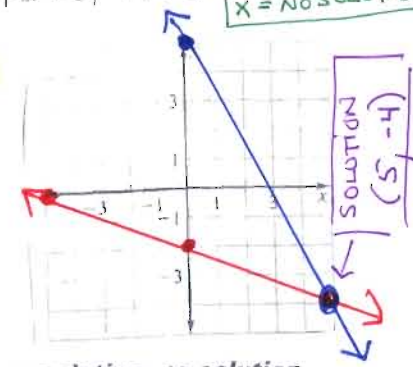
Solve the equation, if possible.

61. $3|x - 2| + 2 = 17$ $|x - 2| = 5$ $x = -3, 7$

62. $7|4x + 2| + 6 = 4$ $|4x + 2| = -2/7$ x = NO SOLUTION

64 SOLVE SYSTEM BY GRAPHING $2x + 5y = -10$ $5y = -9x + 25$

$y = -\frac{2}{5}x - 2$ $y = -\frac{9}{5}x + 5$



SOLUTION (5, −4)

Tell whether the linear system has *one solution*, *no solution*, or *infinitely many solutions*.

68. $4x - 3y = 6$ $y = \frac{4}{3}x - 2$

$8x = 6y + 10$ $y = \frac{4}{3}x - \frac{5}{3}$

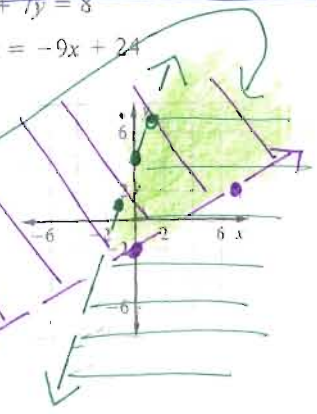
NO SOLUTION

69. $\begin{cases} 3x + 7y = 8 \\ 21y = -9x + 24 \end{cases}$ BOTH EQ's: $y = -\frac{3}{7}x + \frac{8}{7}$ INFINITE SOLUTION

70. Graph the system of linear inequalities.

$y \geq \frac{4}{7}x - 2$

$y < 3x + 4$



Region for Solution

(51) $m = \frac{10}{8} = \frac{5}{4}$ P/S: $y - 2 = \frac{5}{4}(x - 3)$ S/I: $y = \frac{5}{4}x - 7/4$ $y = \frac{5}{4}x - 1\frac{3}{4}$

(52) * Lines have NEGATIVE RECIPROCAL SLOPES

$m = 1/3$ P/S: $y - 2 = 1/3(x - 2)$ S/I: $y = 1/3x + 1\frac{1}{3}$