

Name: Key

Algebra

1st Semester Exam Review GAME

1. Evaluate the expression $\left(\frac{3}{5}\right)^4$.

$\frac{81}{625}$

2. Evaluate the expression $6kn$ when $k = 4$ and $n = 4.5$.

108

3. Evaluate the expression $\frac{3}{2}[13 - (1 + 3)]^2$.

$121.5 = \frac{243}{2}$

4. Evaluate the expression $3^4 \cdot 4 - 8 \div 2$.

$81 \cdot 4 - 8 \div 2$
 $324 - 4$
320

5. Translate the phrase "3 times the sum of y and 12" into an algebraic expression.

$3(y + 12)$

6. Find the unit rate for $\frac{45 \text{ students}}{9 \text{ groups}}$.

$\frac{5 \text{ students}}{1 \text{ group}}$

7. Decide whether 8 is a solution of $4x + 8 < 15$.

$x = 8 < 15$

No

8. Write an inequality for "the product of 4 and twice a number is at most 64."

$4(2x) \leq 64$
 $8x \leq 64$

9. For the relation below, tell whether it is also a function. Explain.

x	y
1	4
2	18
3	4
4	-8

yes

10. Make a table for the function $y = 4x + 1$ and identify the range. Domain: $\{0, 2, 3, 9\}$

x	y
0	1
2	9
3	13
9	37

11. Write a rule for the function represented by the table below.

x	y
0	-5
1	0
2	5
3	10

$y = 5x - 5$

12. For the table below, identify the range.

x	y
1	5
7	9
2	8
3	1

$\{1, 5, 8, 9\}$

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Tell whether each number is a real number, rational number, irrational number, integer, and/or whole number.

13. 8.7

real
rational

14. π

real
irrational

15. Evaluate the expression $-2|6x|$ when $x = -5$.

-60

NC

16. Find the sum.

$17 + -88$

-71

NC
17. Find the difference.

$-46 - 17$

-63

NC
18. Find the difference.

$-4 - (-56)$

52

19. Evaluate the expression $xy + 1$ when $x = 3.3$ and $y = 7$.

24.1

20. Simplify the expression $5 + 8(6x - 3)$.

$5 + 48x - 24$

$48x - 19$

21. Simplify the expression $13b + 18 - 15 - 9b$.

$4b + 3$

NC
23. Find the quotient of $\frac{1}{4} \div \left(\frac{13}{12}\right)$.

$\frac{1}{4} \times \frac{12}{13} = \frac{3}{13}$

22. Simplify the expression $\frac{24 - 12m}{6}$.

$4 - 2m$

NC
24. Evaluate the expression $\pm\sqrt{121}$.

± 11

25. Solve the equation $14 + 2w = 52$.

$w = 19$

26. Solve the equation $52 = \frac{2x}{3} - 4$.

$x = 72$

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27. Solve the equation $18 + 5(2 - x) = 7 + 2x$

$$18 + 10 - 5x = 7 + 2x$$

$$21 = 7x$$

$$x = 3$$

28. Write and solve an equation to find w if a rectangle has an area of 24 cm^2 with a length of 6 and a width of $w - 1$.

$$24 = 6(w - 1)$$

$$24 = 6w - 6$$

$$w = 5$$

Solve the equations in 29-30, if possible.

29. $12z = 8 + 14z - 2z$

$$0 = 8$$

no solution

30. $5(d + 1) = -4 + 9d$

$$5d + 5 = -4 + 9d$$

$$-4d = -9$$

$$d = \frac{9}{4}$$

31. Solve the proportion $\frac{35}{300} = \frac{7}{x}$.

$$35x = 2100$$

$$x = 60$$

32. Solve the proportion $\frac{2}{5} = \frac{2w}{w+2}$.

$$2(w+2) = 10w$$

$$2w + 4 = 10w$$

$$4 = 8w$$

$$w = \frac{1}{2}$$

33. What number is 14% of 60?

$$8.4 \quad \frac{42}{5}$$

34. What percent of 200 is 65?

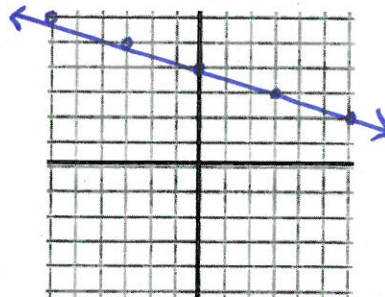
$$\frac{65}{200} \quad 32.5\%$$

35. Rewrite $9 - 3y = x$ so that y is a function of x .

$$y = -\frac{1}{3}x + 3$$

36. Graph the line $x + 3y = 12$. Label its x -intercept and y -intercept.

$$y = -\frac{1}{3}x + 4$$



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37. Find the slope of the line that passes through (2, 5) and (7, 10).

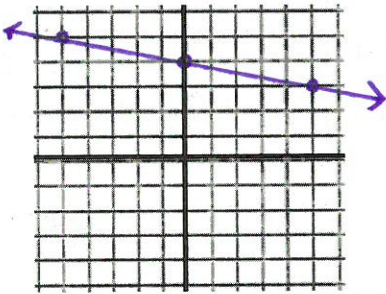
$$m = 1$$

38. Identify the slope and y-intercept of $-4x + 3y = 9$.

$$y = \frac{4}{3}x + 3$$

$$m = \frac{4}{3} \quad b = 3$$

39. Graph the equation $y = \frac{-1}{5}x + 4$.



40. Does the equation $x = 7y$ represent direct variation? If so, what is the constant of variation?

Not AA

Yes $y = \frac{1}{7}x$

$$COV = \frac{1}{7}$$

41. Evaluate the function $f(x) = -4x + 2$ when $x = -3$.

$$14$$

Not AA

42. Write an equation in slope-intercept form of the line that passes through $(-2, 13)$ and $(3, 7)$.

$$y = \frac{-6}{5}x + b$$

$$m = \frac{-6}{5}$$

$$7 = \frac{-6}{5}(3) + b$$

$$b = \frac{53}{5}$$

$$y = \frac{-6}{5}x + \frac{53}{5}$$

Not AA

43. Write an equation in point-slope form of the line which passes through $(8, -7)$ and has a slope of -2 .

$$y + 7 = -2(x - 8)$$

44. Write an equation in point-slope form of the line which passes through $(2, 1)$ and $(3, 0)$.

$$m = \frac{-1}{1} = -1$$

$$y - 0 = -1(x - 3)$$

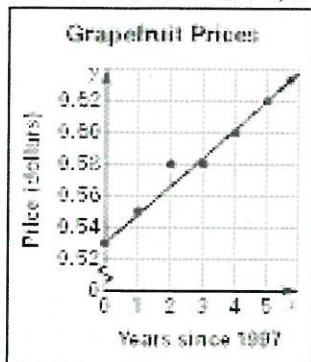
$$y - 1 = -1(x - 2)$$

45. Write an equation of the horizontal line that passes through $(2, 5)$.

$$y = 5$$

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46. For the data below, how does time affect price?



The price of grapefruit increases with time.

47. Find the zero of $h(x) = 3x - 15$.

$$0 = 3x - 15$$

$$x = 5$$

Solve each inequality, if possible. Graph your solution.

48. $-2x + 7 > 7$

$$x < 0$$

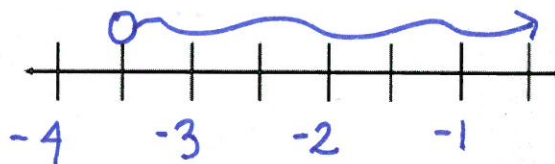


49. $k - 4 + k < 4k + 3$

$$2k - 4 < 4k + 3$$

$$-2k < 7$$

$$k > -\frac{7}{2} \quad (-3.5)$$



Solve the inequality.

50. $-4 < 2n + 6 < 16$

$$-10 < 2n < 10$$

$$-5 < n < 5$$

51. Is (1, 3) a solution of $x + 3y > 6$?

YES

$$10 > 6$$

52. Translate the verbal phrase "The product of 2 and the sum of x and 8 is less than 4" into an inequality.

$$2(x + 8) < 4$$

53. You earned \$58 last week at your part-time job and have already spent \$32.99 shopping. You want to buy \$5 footlongs at Subway with your remaining money. How many footlong subs can you buy?

5 footlong subs

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54. Solve the inequality $12 < 5n - 8 < 37$.

$$20 < 5n < 45$$

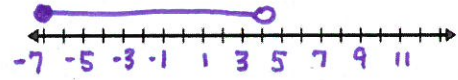
$$4 < n < 9$$

55. Graph the solution to the compound inequality $-5 < -3x + 7 \leq 28$.

$$-12 < -3x \leq 21$$

$$4 > x \geq -7$$

$$-7 \leq x < 4$$



56. Solve the equation $|2m - 8| + 20 = 30$, if possible.

$$2m - 8 = 10$$

$$2m = 18$$

$$m = 9$$

$$2m - 8 = -10$$

$$2m = -2$$

$$m = -1$$

57. Dannon fills their yogurt containers with 6.5 oz. of yogurt. For quality control purposes, they must be no more than $\frac{1}{5}$ oz. off. What is the maximum allowable amount of yogurt in a container?

$$6.7 \text{ oz}$$