

Name: Key

Algebra

1st Semester Exam Review

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

$$\frac{27}{125}$$

2. Evaluate the expression kn when $k = 9$ and $n = 4.5$.

$$40.5$$

3. Evaluate the expression $\frac{3}{4}[13 - (2 + 3)]^2$.

$$48$$

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

$$\frac{63.75}{4}$$

5. Translate the phrase "4 times the difference of 6 and a number y " into an algebraic expression.

$$4(6 - y)$$

6. Find the unit rate for $\frac{32 \text{ students}}{4 \text{ groups}}$.

$$\frac{8 \text{ students}}{1 \text{ group}}$$

7. Decide whether 5 is a solution of $4x + 8 < 15$.

$$28 < 15 \quad \times$$

No
5 is not a solution

8. Write an equation or inequality for "the sum of 42 and twice a number is at most 54."

$$42 + 2x \leq 54$$

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

x	y
1	4
2	18
3	2
4	-8

Yes, each x-value has only one y-value

10. Make a table for the function $y = 2x + 7$ and identify the range. Domain: $\{0, 2, 3, 9\}$

x	0	2	3	9
y	7	11	13	25

Range: $\{7, 11, 13, 25\}$

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

x	y
0	6
1	1
2	-4
3	-9

$$y = -5x + 6$$

12. For the table below, identify the range.

x	y
1	3
7	9
2	28
3	91

Range: $\{3, 9, 28, 91\}$

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Simplify using distributive property.

13. $6x(x - 5)$

$$6x^2 - 30x$$

14. $3(x - 4) - (2x - 6)$

$$x - 6$$

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

$$-10$$

16. Find the sum.

$$12 + -48$$

$$-36$$

17. Find the difference.

$$-6 - 10$$

$$-16$$

18. Find the difference.

$$-4 - (-13)$$

$$9$$

19. Evaluate the expression $xy + 1$ when $x = 3$ and $y = 7.2$.

$$22.6$$

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

$$24x - 43$$

21. Simplify the expression $13b + 8 - 15 - 2b$.

$$11b - 7$$

22. Simplify the expression $\frac{8 - 12m}{6}$.

$$\frac{4}{3} - 2m$$

23. Find the quotient of $\frac{3}{4} \div \left(\frac{5}{12}\right)$.

$$\frac{9}{5}$$

24. Evaluate the expression $\pm\sqrt{64}$.

$$\pm 8$$

25. Solve the equation $14 + w = 12$.

$$w = -2$$

26. Solve the equation $5 = \frac{2x}{3} - 4$.

$$x = \frac{27}{2} = 13.5$$

27. Solve the equation $8 + 5(2 - 3x) = 7 + 4x$

$$x = 11/19$$

28. Write and solve an equation to find w if a rectangle has an area of 24 cm^2 with a length of 8 and a width of $2w - 1$.

$$w = 2$$

Solve the equations in 29-30, if possible.

29. $6z = 8 + 4z + 2z$

no solution

30. $5(d + 1) = 3 + 7d$

$$d = 1$$

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31. Solve the proportion $\frac{35}{30} = \frac{7}{x}$.

$$x = 6$$

32. Solve the proportion $\frac{3}{5} = \frac{2w}{w+2}$.

$$w = \frac{6}{7}$$

33. What number is 24% of 60?

$$14.4$$

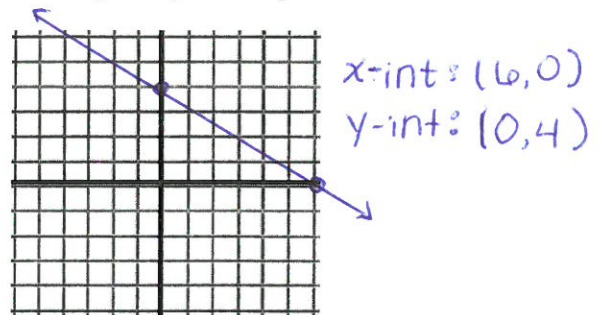
34. What percent of 200 is 85?

$$42.5\%$$

35. Rewrite $9 - 6y = x$ so that y is a function of x .

$$y = -\frac{1}{6}x + \frac{3}{2}$$

36. Graph the line $2x + 3y = 12$. Label its x -intercept and y -intercept.



37. Find the slope of the line that passes through (2, -5) and (6, 10).

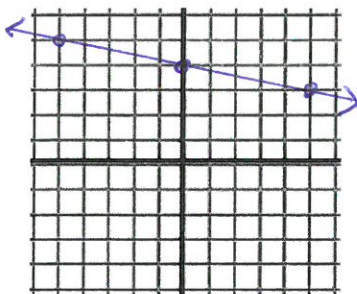
$$m = \frac{15}{4}$$

38. Identify the slope and y -intercept of $-5x + 3y = 9$.

$$\text{slope} = \frac{5}{3}$$

$$y\text{-intercept} = -3$$

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



40. Does the equation $x = 7y + 8$ represent direct variation? If so, what is the constant of variation?

No, not in the form $y = mx$

41. Evaluate the function $f(x) = 4x + 12$ when $x = -3$.

$$f(-3) = 0$$

42. Write an equation in slope-intercept form of the line that passes through (-2, 8) and (3, 7).

$$y = -\frac{1}{5}x + \frac{38}{5}$$

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43. Write an equation in point-slope form of the line which passes through (3, -7) and has a slope of -2.

$$y + 7 = -2(x - 3)$$

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

$$y = 5$$

44. Write an equation in point-slope form of the line which passes through (4, 1) and (3, 0).

$$y - 1 = 1(x - 4)$$

$$\text{or } y - 0 = 1(x - 3)$$

46. Write an equation in standard form through the points (4, 0) and (8, -3).

$$m = \frac{-3 - 0}{8 - 4} = \frac{-3}{4}$$

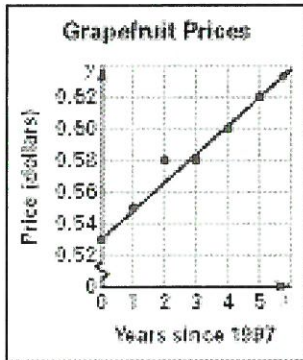
$$3x + 4y = 12$$

$$0 = \frac{-3}{4}(4) + b$$

$$0 = -3 + b$$

$$3 = b$$

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



Positive
Correlation

As years since 1997 increases, the price of grapefruit increases.

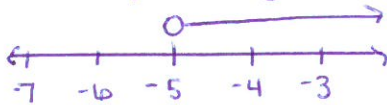
48. Find the zero of $h(x) = 5x - 15$.

$$x = 3$$

Solve & graph each inequality.

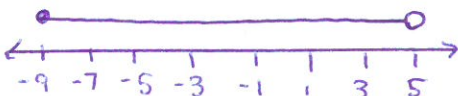
49. $\frac{-1}{5}x + 4 < 5$

$$x > -5$$



51. $3 < -2x - 7 \leq 11$

$$-9 \leq x < 5$$



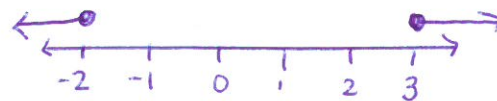
Solve the following, if possible.

53. $|x - 3| + 6 = 5$

no
solution

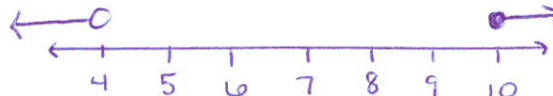
50. $|2x - 1| \geq 5$

$$x \geq 3 \text{ or } x \leq -2$$



52. $3x - 6 < 6$ or $-2x \leq -20$

$$x < 4 \text{ or } x \geq 10$$



54. $-2|x + 2| + 5 = -5$

$$x = 3 \quad x = -7$$