

Algebra 1 Summer Homework

There are 6 "Chapters" of work that need to be completed before the first day of class. The ODD numbers are REQUIRED. If you do even numbers as well, you will receive extra credit. Each "chapter" covers topics that you need to be familiar with before the beginning of Algebra 1. They are a review of the topics from Pre-Algebra.

You MUST show your work. You will need to do the work on a SEPARATE sheet of paper. DO NOT try to squeeze your answers onto the worksheets. Put the chapter number on the top of the notebook paper and the problem number next to the problem.

I will collect the worksheets and the notebook paper on the first day of class.

If you are having trouble with any of the worksheets, you can do a search to find instruction or review of how to solve. For example, if you are having trouble remembering how to write a number in scientific notation, do a search for "how to write numbers in scientific notation" and you will find Youtube video explanations.

I have included the answers so that you can check your work and verify that you know how to solve the problems correctly. This is why you MUST show your work to get credit. I have given you the answers, so just giving me the answers back makes no sense.

I look forward to seeing you in class in September! Enjoy your summer!

(You may use a calculator.)

Chapter 2

2.1 Evaluate the expression. Justify each of your steps.

1. $(17 + 9) + 3$

2. $(5.63)(2.45)(0)$

3. $0 + 8 \cdot 1$

4. $2(-18)(5)$

2.1 Evaluate the expression when $x = -7$ and $y = 5$.

5. $8xy$

6. $27 + 3y^2 + x$

7. $35 + 4x + y$

8. $12xy^2$

2.1 Simplify the expression.

9. $-4(11m)$

10. $(3a)(17)$

11. $b + (-14) + 35$

12. $8 + c + (-5)$

2.1 Identify the property that the statement illustrates.

13. $-5a + 0 = -5a$

14. $4^4 + 21 = 21 + 4^4$

15. $(3 \cdot 5) \cdot 6 = 3 \cdot (5 \cdot 6)$

2.2 Use the distributive property to evaluate the expression.

16. $4(8 - 13)$

17. $(6 + 12)3$

18. $-9(3 + 10)$

19. $(-5 - 2)(-6)$

2.2 Use the distributive property to write an equivalent variable expression.

20. $7(m - 5)$

21. $-3(5a + 3)$

22. $(15 + 4b)(-2)$

23. $(2 - 3z)6$

2.3 Simplify the expression.

24. $d + 7d$

25. $-5y + 8y - 2y$

26. $6x - (x - 1)$

27. $2(c + 4) + 3c$

28. $4m - 6m - 7m$

29. $-3b + 11b$

30. $-3(r + 2) - 3r$

31. $-p + 3(p - 5)$

2.4 Solve the equation using mental math.

32. $3 + x = 19$

33. $n - 9 = -4$

34. $32 = -8u$

35. $5 = \frac{55}{g}$

Solve the equation. Check your solution.

2.5 36. $y + 8 = 17$

37. $r - 13 = -5$

38. $18 = p - 4$

39. $-15 = 7 + u$

40. $742 + b = 534$

41. $157 = c + 48$

42. $173 = x - 23$

43. $j - 15 = -47$

2.6 44. $-15z = 0$

45. $-78 = 3g$

46. $17 = -t$

47. $-13w = -91$

48. $\frac{k}{14} = 5$

49. $\frac{s}{-9} = 16$

50. $-20 = \frac{x}{-17}$

51. $-7 = \frac{r}{50}$

2.7 Perform the indicated operation.

52. $6.3 + (-11.9)$

53. $-9.8 - 1.34$

54. $13.16 \div (-2.35)$

55. $3.7(-4.9)$

2.7 Solve the equation. Check your solution.

56. $-9.5 = \frac{u}{-2.72}$

57. $g + 4.6 = 19.3$

58. $-0.32b = 2.08$

59. $-12.3 = h - 5.47$

Chapter 9

Solve the equation. Check your solution.

3.1 1. $6m + 11 = 83$ 2. $39 = 15n + 24$ 3. $23 = 19k - 34$ 4. $59 - 4n = 91$
 5. $\frac{x}{8} + 12 = -5$ 6. $5 = \frac{c}{-4} + 7$ 7. $\frac{b}{3} - 13 = 14$ 8. $-8 = -14 - \frac{d}{9}$

3.2 9. $11a + 9 - 3a = -7$ 10. $4r + 41 + 5r = 104$ 11. $32 = 8(p + 3)$
 12. $42 = -7(j - 4)$ 13. $6(7 - 4y) = 18$ 14. $-3(2s + 5) = 15$
 15. $17 + 5(t + 1) = 37$ 16. $7h - 4(h - 3) = 33$ 17. $49 = -6b + 9 + 2b$

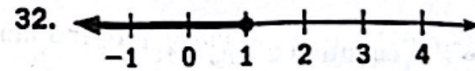
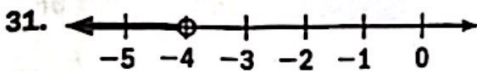
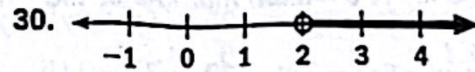
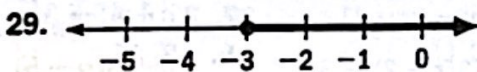
3.3 18. $14k + 55 = 11k + 94$ 19. $-4m - 7 = 8 - 9m$ 20. $23f - 41 = 54f + 21$
 21. $16z - 18 = 4 + 5z$ 22. $d + 3 = 2(9 - d)$ 23. $4(7c + 2) = 28c$
 24. $6(x + 8) = 5x + 4$ 25. $12n + 6 = 3(4n + 2)$ 26. $18r - 7 = 3 + 8r$

3.3 Write the verbal sentence as an equation. Then solve the equation.

27. Ten plus 7 times a number is equal to 6 less than 5 times the number.

28. Eleven minus 4 times a number is equal to 6 plus the number.

3.4 Write an inequality represented by the graph.



Solve the inequality. Graph your solution.

3.4 33. $a + 3 < 10$ 34. $u + 7 \geq 5$ 35. $-5 \leq p - 2$ 36. $41 > g + 45$
 37. $19 \geq b - 29$ 38. $7.9 < n - 5$ 39. $k + 3.7 > 4$ 40. $s + 4.2 \leq 7.8$
 3.5 41. $\frac{b}{8} \leq 13$ 42. $\frac{a}{-5} < 9$ 43. $\frac{x}{4} \geq -2$ 44. $\frac{d}{7} > 3$
 45. $-5d > 40$ 46. $7w \geq 84$ 47. $-12 < 3t$ 48. $-4z \leq -16$

3.5 Write the verbal sentence as an inequality. Then solve the inequality.

49. Three times a number is at most 18. 50. Nine times a number is greater than 36.

51. A number divided by -2 is less than 10. 52. A number divided by 5 is at least 20.

3.6 Solve the inequality. Graph your solution.

53. $3w + 8 > 17$ 54. $8n - 21 \leq -5$ 55. $43 < 31 - 2z$ 56. $9 + 5d \geq 44$
 57. $8 + \frac{c}{11} \leq 10$ 58. $\frac{s}{4} - 9 > -15$ 59. $-6r + 3 > 9 - 7r$ 60. $3y - 7 \geq -32 + 8y$

Chapter 4

4.1 Tell whether the number is *prime* or *composite*.

1. 93

2. 76

3. 23

4. 53

4.1 Write the prime factorization of the number.

5. 72

6. 47

7. 96

8. 400

4.2 Find the greatest common factor of the numbers. Then tell whether the numbers are relatively prime.

9. 51, 63

10. 21, 44

11. 32, 110

12. 56, 136

4.2 Find the greatest common factor of the monomials.

13. $48y^2, 52y$

14. $16p, 68p$

15. $12s, 118s^4$

16. $3x, 9x^2, 12x^3$

4.3 Write the fraction in simplest form.

17. $\frac{15}{80}$

18. $\frac{8}{84}$

19. $\frac{28}{44}$

20. $\frac{38}{95}$

21. $\frac{14m^2}{21m^3}$

22. $\frac{36r}{6r^2s}$

23. $\frac{38abc}{4c^2}$

24. $\frac{50x^4}{12x}$

4.4 Find the least common multiple of the numbers.

25. 10, 15

26. 21, 28

27. 32, 60

28. 18, 45

4.4 Find the least common multiple of the monomials.

29. $5c, 18c^2$

30. $4s^3, 36s^2$

31. $10n^2p, 16np$

32. $57z^4, 39z^2$

4.5 Find the product or quotient. Write your answer using exponents.

33. $6^5 \cdot 6^9$

34. $12^3 \cdot 12^4 \cdot 12^2$

35. $\frac{4^{11}}{4^5}$

36. $\frac{3^8}{3}$

4.5 Simplify.

37. $4c^3 \cdot 5c^2$

38. $7d^5 \cdot d^2$

39. $\frac{6a^6}{a^3}$

40. $\frac{15r^7}{12r^4}$

4.6 Write the expression using only positive exponents.

41. 18^{-4}

42. 7^{-8}

43. s^3t^0

44. $5w^{-2}$

4.7 Write the number in scientific notation.

45. 16,000,000

46. 3,120,000,000

47. 0.00004

48. 0.0000078

4.7 Write the number in standard form.

49. 8.23×10^8

50. 4.367×10^5

51. 2.1×10^{-3}

52. 7.893×10^{-7}

Chapter 5

5.1 Show that the number is rational by writing it as a quotient of two integers.

1. -4

2. 0.58

3. $3\frac{5}{16}$

4. 70

5.1 Write the fraction or mixed number as a decimal.

5. $\frac{3}{5}$

6. $-\frac{14}{9}$

7. $-6\frac{13}{25}$

8. $2\frac{5}{12}$

5.1 Write the decimal as a fraction or mixed number.

9. 0.34

10. -3.78

11. 9.27

12. $0.\bar{5}$

Find the sum or difference.

5.2 13. $-\frac{4}{11} + \frac{9}{11}$

14. $\frac{7}{18} - \frac{17}{18}$

15. $-4\frac{7}{15} - 2\frac{11}{15}$

16. $-9\frac{1}{3} + 1\frac{2}{3}$

5.3 17. $-\frac{3}{4} - \frac{2}{7}$

18. $\frac{7}{8} + \left(-\frac{3}{16}\right)$

19. $-3\frac{1}{6} + 6\frac{5}{22}$

20. $5\frac{2}{9} - 7\frac{8}{15}$

5.3 Simplify the expression.

21. $\frac{w}{12} + \frac{w}{15}$

22. $\frac{x}{21} - \frac{x}{3}$

23. $-\frac{5z}{14} + \frac{9z}{28}$

24. $\frac{2y}{25} - \frac{3y}{10}$

5.4 Find the product.

25. $\frac{3}{7} \cdot \frac{5}{18}$

26. $\frac{9}{10} \left(-\frac{5}{21}\right)$

27. $-24 \cdot \left(-\frac{7}{16}\right)$

28. $-3\frac{1}{3} \cdot 5\frac{13}{20}$

5.5 Find the quotient.

29. $\frac{5}{16} \div \frac{35}{48}$

30. $-\frac{11}{12} \div \frac{3}{8}$

31. $-7\frac{49}{54} \div 5\frac{5}{6}$

32. $-22 \div \left(-\frac{4}{11}\right)$

5.6 Solve the equation. Check your solution.

33. $\frac{6}{7}a = 18$

34. $\frac{5}{14}c = -\frac{1}{2}$

35. $\frac{2}{7}x - 5 = 17$

36. $\frac{4}{9} = \frac{1}{3}x - \frac{5}{9}$

5.7 Solve the equation by first clearing the fractions or the decimals.

37. $\frac{1}{4}x + \frac{1}{6} = -\frac{5}{12}$

38. $\frac{4}{7} = \frac{1}{8}x - 3$

39. $6.8x + 5.3 = 7$

40. $27.62 = 3.4x - 5.7$

5.7 Solve the inequality.

41. $-\frac{4}{5}p + 15 > \frac{3}{5}$

42. $\frac{1}{9}m - 2 \geq \frac{2}{3}$

43. $\frac{3}{4}z - \frac{3}{8} \leq \frac{1}{4}$

44. $\frac{1}{2} + \frac{4}{11}y < \frac{19}{22}$

Chapter 6

6.1 Find the unit rate.

1. $\frac{\$13.92}{8 \text{ gallons}}$

2. $\frac{58 \text{ mi}}{4 \text{ h}}$

3. $\frac{15 \text{ L}}{5 \text{ days}}$

4. $\frac{\$87.50}{5 \text{ tickets}}$

6.1 Write the equivalent rate.

5. $\frac{50 \text{ mi}}{1 \text{ h}} = \frac{? \text{ ft}}{1 \text{ h}}$

6. $\frac{\$58}{1 \text{ day}} = \frac{? \text{ dollars}}{1 \text{ week}}$

7. $\frac{440 \text{ ft}}{1 \text{ min}} = \frac{? \text{ ft}}{1 \text{ h}}$

8. $\frac{70 \text{ m}}{30 \text{ sec}} = \frac{? \text{ m}}{1 \text{ min}}$

Solve the proportion.

6.2 9. $\frac{4}{5} = \frac{x}{20}$

10. $\frac{5}{12} = \frac{a}{84}$

11. $\frac{z}{15} = \frac{12}{45}$

12. $\frac{c}{8} = \frac{28}{32}$

13. $\frac{8}{13} = \frac{w}{52}$

14. $\frac{3}{7} = \frac{d}{42}$

15. $\frac{b}{6} = \frac{75}{90}$

16. $\frac{n}{9} = \frac{56}{72}$

6.3 17. $\frac{12}{18} = \frac{2}{p}$

18. $\frac{24}{y} = \frac{21}{35}$

19. $\frac{36}{g} = \frac{27}{63}$

20. $\frac{3.8}{95} = \frac{5.7}{s}$

Chapter 7

7.1 Write the percent as a fraction or the fraction as a percent.

1. 43%

2. 15%

3. $\frac{13}{20}$

4. $\frac{8}{25}$

7.1 Find the percent of the number.

5. 40% of 300

6. 25% of 28

7. 75% of 76

8. 90% of 430

7.2 Use a proportion to answer the question.

9. What percent of 140 is 28?

10. 15 is 60% of what number?

11. What number is 45% of 180?

12. What percent of 136 is 850?

7.3 Write the decimal as a percent or the percent as a decimal.

13. 0.045

14. 1.34

15. 7%

16. 0.25%

7.3 Write the fraction as a percent.

17. $\frac{7}{12}$

18. $\frac{13}{15}$

19. $\frac{15}{8}$

20. $\frac{11}{6}$

7.4 Use the percent equation to answer the question.

21. What number is 52% of 625?

22. What percent of 72 is 252?

23. 117 is 45% of what number?

24. What number is 0.5% of 3400?

7.5 Identify the percent of change as an *increase* or a *decrease*. Then find the percent of change.

25. Original: 40
New: 62

26. Original: 650
New: 806

27. Original: 92
New: 23

28. Original: 248
New: 217

7.6 Use the given information to find the new price.

29. Wholesale price: \$130
Markup percent: 80%

30. Wholesale price: \$14
Markup percent: 120%

31. Original price: \$24
Discount percent: 30%

7.6 In Exercises 32–34, use the given information to find the total cost.

32. Original price: \$90
Sales tax: 6%

33. Original price: \$65
Sales tax: 5%

34. Original price: \$34
Sales tax: 4%

Algebra 1 Summer Homework Answers

Chapter 2

- 1) 29 2) 0 3) 8 4) -180 5) -280 6) 95 7) 12 8) -1200
9) -44m 10) 95 11) $b + 21$ 12) $c + 3$ 13) identity property of addition
14) commutative property of addition 15) associative property of multiplication
16) -20 17) 54 18) -117 19) 42 20) $7m - 35$ 21) $-15a - 9$
22) $-30 - 8b$ 23) $12 - 18z$ 24) $8d$ 25) y 26) $5x + 1$
27) $5c + 8$ 28) $-9m$ 29) $8b$ 30) $-6r - 6$ 31) $2p - 15$ 32) 16
33) 5 34) -4 35) 11 36) 9 37) 8 38) 22 39) -22 40) -208 41) 109
42) 196 43) -32 44) 0 45) -26 46) -17 47) 7 48) 70 49) -144
50) 340 51) -350 52) -5.6 53) -11.14 54) -5.6 55) -18.13
56) -25.84 57) 14.7 58) -6.5 59) -6.83

Chapter 3

- 1) 12 2) 1 3) 3 4) -8 5) -136 6) 8 7) 81 8) -54 9) -2 10) 7 11) 1
12) -2 13) 1 14) -5 15) 3 16) 7 17) -10 18) 13 19) 3 20) -2
21) 2 22) 5 23) no solution 24) -44 25) all real numbers 26) 1
27) $10 + 7x = 5x - 6$; -8 28) $11 - 4x = 6 + x$; 1 29) $x \geq -3$ 30) $x > 2$
31) $x < -4$ 32) $x \leq 1$ The graphs that go with the answers to problems 33 to 60 are at the bottom of the answers. 33) $a < 7$ 34) $u \geq -2$ 35) $p \geq -3$ 36) $g < -4$ 37) $b \leq 48$
38) $n > 12.9$ 39) $k > 0.3$ 40) $s \leq 3.6$ 41) $b \leq 104$ 42) $a > -45$ 43) $x \geq -8$ 44) $d > 21$
45) $d < -8$ 46) $w \geq 12$ 47) $t > -4$ 48) $z \geq 4$ 49) $3x \leq 18$; $x \leq 6$ 50) $9x > 36$; $x > 4$
51) $x/-2 < 10$; $x > -20$ 52) $x/5 \geq 20$; $x \geq 100$ 53) $w > 3$ 54) $n \leq 2$ 55) $z < -6$
56) $d \geq 7$ 57) $c \leq 22$ 58) $s > -24$ 59) $r > 6$ 60) $y \leq 5$

Chapter 4

- 1) composite 2) composite 3) prime 4) prime 5) $2^3 \cdot 3^2$ 6) prime
7) $2^5 \cdot 3$ 8) $2^4 \cdot 5^2$ 9) 3; no 10) 1; yes 11) 2; no 12) 8; no
13) $4y$ 14) $4p$ 15) $2s$ 16) $3x$ 17) $3/16$ 18) $2/21$
19) $7/11$ 20) $2/5$ 21) $2/3m$ 22) $6/rs$ 23) $19ab/2c$ 24) $25x^2/6$
25) 30 26) 84 27) 480 28) 90 29) $90c^2$ 30) $36s^3$
31) $80n^2p$ 32) $741z^4$ 33) 6^{14} 34) 12^9 35) 4^6 36) 3^7
37) $20c^5$ 38) $7d^7$ 39) $6a^3$ 40) $\frac{5r^3}{4}$ 41) $\frac{1}{18^4}$ 42) $\frac{1}{7^8}$
43) s^3 44) $\frac{5}{w^2}$ 45) 1.6×10^7 46) 3.12×10^9 47) 4×10^{-5}
48) 7.8×10^{-6} 49) 823,000,000 50) 436,700 51) 0.0021 52) 0.0000007893

Chapter 5

- 1-4 sample answers are given. 1) $-4/1$ or $4/-1$ 2) $29/50$ 3) $53/16$ 4) $70/1$
5) 0.6 6) -1.5 with a bar over the 5 7) -6.52 8) 2.416 with a bar over the 6
9) $17/50$ 10) $-3 \frac{39}{50}$ 11) $9 \frac{27}{100}$ 12) $5/9$ 13) $5/11$ 14) $-5/9$
15) $-7 \frac{1}{5}$ 16) $-7 \frac{2}{3}$ 17) $-1 \frac{1}{28}$ 18) $11/16$ 19) $3 \frac{2}{33}$ 20) $-2 \frac{14}{45}$
21) $\frac{3w}{20}$ 22) $-\frac{2x}{7}$ 23) $-\frac{z}{28}$ 24) $-\frac{11y}{50}$ 25) $5/42$ 26) $-3/14$
27) $10 \frac{1}{2}$ 28) $-18 \frac{5}{6}$ 29) $3/7$ 30) $-2 \frac{4}{9}$ 31) $-1 \frac{16}{45}$ 32) $60 \frac{1}{2}$
33) 21 34) $-1 \frac{2}{5}$ 35) 77 36) 3 37) $-2 \frac{1}{3}$ 38) $28 \frac{4}{7}$
39) 0.25 40) 9.8 41) $p < 18$ 42) $m \geq 24$ 43) $z \leq 5/6$ 44) $y < 1$

Chapter 6

- 1) \$1.71/1 gal 2) 14.5 mi/1 hr 3) 3L/1 day 4) \$17.50/1 ticket 5) 264,000
6) 406 7) 26,400 8) 140 9) 16 10) 35 11) 4 12) 7 13) 32
14) 18 15) 5 16) 7 17) 3 18) 40 19) 84 20) 142.5

Chapter 7

- 1) $\frac{43}{100}$ 2) $\frac{3}{20}$ 3) 65% 4) 32% 5) 120 6) 7 7) 57
8) 387 9) 20% 10) 25 11) 81 12) 625% 13) 4,5%
14) 134% 15) 0.07 16) 0.0025 17) 58.3% with a bar over the 3
18) 86.6% with a bar over the 6 19) 187.5% 20) 183.3% with a bar over the 3
21) 325 22) 350% 23) 260 24) 17 25) increase; 55% 26) increase; 24%
27) decrease; 75% 28) decrease; 12.5% 29) \$234 30) \$30.80 31) \$16.80
32) \$95.40 33) \$68.25 34) \$35.36

