Algebra 1 – Summer Review Packet

Part 1: Foundations – Chapters 1–4 (Basic Algebra)

200 Mixed Problems

Name: _____ **Date:** _____

Directions: Complete all problems. Show all work on a separate sheet of paper or in your notebook. Box in your final answers. This packet reviews order of operations, integers, evaluating and simplifying expressions, translating, solving equations, exponents, and polynomials.

1. Evaluate: $7 + 3 \times 4$	**2.** Simplify: $9x + 4x$
3. Solve: $x + 8 = 15$	**4.** Evaluate $5a - 3$ when $a = 6$
5. Add: $-7 + (-12)$	**6.** Translate: the sum of a number and 11
7. Simplify: $3(x + 5)$	**8.** Solve: $x - 9 = 4$
9. Multiply: $x^2 \cdot x^5$	**10.** Simplify: $8y - y$
11. Evaluate: $20 \div 4 + 2 \times 3$	**12.** Subtract: $6 - (-10)$
13. Solve: $4x = 36$	**14.** Translate: 5 less than twice a number
15. Simplify: $-2(3a - 7)$	**16.** Evaluate $2x + 3y$ when $x = 4$ and $y = 5$
17. Combine like terms: $6m + 2 - m + 9$	**18.** Solve: $x/3 = 7$
19. Simplify: $(2x^3)(4x^2)$	**20.** Multiply: $-5 \cdot (-8)$
21. Solve: $3x + 5 = 20$	**22.** Evaluate: $(6 + 2)^2 - 10$
23. Simplify: $4a + 3b - a + 5b$	**24.** Translate into an equation: a number increased by 7 is 19
25. Divide: $-48 \div 6$	**26.** Solve: $2x - 7 = 11$
27. Simplify: $7 - 3(x - 2)$	**28.** Evaluate $4mn$ when $m = 3$ and $n = 2$
29. Add the polynomials: $(3x + 5) + (2x - 8)$	**30.** Solve: $x + 14 = 9$

31. Simplify: $-3(-2x + 4)$	**32.** Evaluate: $30 - 4 \times 5 + 1$
33. Solve: $5x = -45$	**34.** Translate: the quotient of a number and 6
35. Simplify: $2x^2 + 5x^2$	**36.** Combine: $-8 + 15 - 6 + 2$
37. Solve: $x/5 = -3$	**38.** Multiply: $(-4x)(3x^2)$
39. Evaluate $3a^2$ when $a = 4$	**40.** Solve: $6x - 4 = 26$
41. Simplify: $5(2x + 1) - 3x$	**42.** Translate into an equation: three times a number is 24
43. Subtract the polynomials: $(7x - 3) - (2x + 5)$	**44.** Evaluate: $18 \div (3 + 6) \times 2$
45. Solve: $x - 12 = -5$	**46.** Simplify: $-6y + 9y - y$
47. Multiply: $-7 \cdot 4$	**48.** Solve: $8 = x + 3$
49. Simplify: $(a^4)(a^3)(a)$	**50.** Evaluate $2(x + y)$ when $x = 5$ and $y = 3$
51. Solve: $2x + 9 = x + 15$	**52.** Simplify: $3x - 2(x + 4)$
53. Translate: 8 more than the product of 3 and a number	**54.** Add: $-15 + 23$
55. Solve: $7x = 0$	**56.** Evaluate: $4^2 - 3 \times 2$
57. Simplify: $-4(x - 6) + 2x$	**58.** Multiply the monomials: $(5a^2b)(3ab^3)$
59. Solve: $x/2 + 3 = 8$	**60.** Combine like terms: $9p - 4q + 2p + 7q$
61. Solve: $3(x - 2) = 12$	**62.** Evaluate $-x + 5$ when $x = -2$
63. Simplify: $6 + 2(4x - 1)$	**64.** Translate into an equation: the sum of two consecutive integers is 45
65. Subtract: $-9 - 14$	**66.** Solve: $10 - x = 3$

67. Simplify: $(3x^2y)^2$	**68.** Multiply: $-2 \cdot -3 \cdot -5$
69. Solve: $4x + 1 = 3x + 9$	**70.** Evaluate: $50 - [6 + 2(7)]$
71. Simplify: $-(5x - 8)$	**72.** Solve: $5x - 3 = 2x + 12$
73. Translate: half of a number decreased by 4	**74.** Add the polynomials: $(x^2 + 3x - 1) + (2x^2 - x + 6)$
75. Evaluate $6 - ab$ when $a = 2$ and $b = 4$	**76.** Solve: $x/4 = -2$
77. Simplify: $8x - 3y - 5x + 7y$	**78.** Multiply: $(2x^2)(-6x^4)$
79. Solve: $2(x + 3) = 16$	**80.** Combine: $-7 - (-11) + 5$
81. Simplify: $4(x + 2) + 3(x - 1)$	**82.** Evaluate: $100 \div 5 \div 2$
83. Solve: $9x - 5 = 4x + 20$	**84.** Translate into an expression: twice the sum of a number and 5
85. Subtract the polynomials: $(5x^2 + 2x) - (3x^2 - 4x)$	**86.** Solve: $-3x = 21$
87. Simplify: $-2(4 - 3x) + 5$	**88.** Multiply: $x^3 \cdot x \cdot x^4$
89. Solve: $x + 2x + 3x = 30$	**90.** Evaluate $5x^2 - 2$ when $x = 3$
91. Simplify: $7a - 2(3a - 5)$	**92.** Solve: $4x + 7 = 7$
93. Translate: the difference between 20 and a number	**94.** Add: $-18 + (-24) + 30$
95. Solve: $x/6 + 2 = 5$	**96.** Evaluate: $2 + 3(4^2 - 10)$
97. Simplify: $(4x^3)(2x^2)(x)$	**98.** Multiply: $(-3a^2)(-4a^3)$
99. Solve: $6 = 2x - 4$	**100.** Combine like terms: $12 - 5x + 8 + 2x$
101. Solve: $3x - 1 = x + 7$	**102.** Evaluate $-a - b$ when $a = -3$ and $b = 6$

103. Simplify: $5 - 2(x + 3) + 4x$	**104.** Translate into an equation: 4 less than a number equals 10
105. Subtract: $12 - 20$	**106.** Solve: $8x = -56$
107. Simplify: $(2a^2b^3)^3$	**108.** Multiply: $9 \cdot (-2) \cdot (-1)$
109. Solve: $5(x - 1) = 2x + 7$	**110.** Evaluate: $7 + 12 \div 4 - 3$
111. Simplify: $6x + 4 - 2(x - 3)$	**112.** Solve: $x/7 = 0$
113. Translate: the product of 6 and the sum of a number and 2	**114.** Add the polynomials: $(4a - 2b + 1) + (a + 5b - 3)$
115. Evaluate $3(x - y)$ when $x = 8$ and $y = 2$	**116.** Solve: $10x + 3 = 7x + 18$
117. Simplify: $-4x^2 + 9x^2 - 2x^2$	**118.** Multiply: $(5x^4)(-2x^3)$
119. Solve: $2x - 5 = -13$	**120.** Combine: $3y - 7 + 5y + 12$
121. Simplify: $2(3x + 4) - 5(x - 1)$	**122.** Evaluate: $(8 - 3)^2 + 4 \times 2$
123. Solve: $7x + 2 = 4x + 14$	**124.** Translate into an equation: a number divided by 3 is 9
125. Subtract the polynomials: $(6x - 1) - (2x - 8)$	**126.** Solve: $-5x + 4 = 19$
127. Simplify: $8 - 4(2x - 1)$	**128.** Multiply: $(-x^2)(-x^5)$
129. Solve: $3x + 2x - 4 = 16$	**130.** Evaluate $4a - b^2$ when $a = 5$ and $b = 3$
131. Simplify: $-3(2x - 5) + 7x$	**132.** Solve: $6x - 9 = 3x$
133. Translate: 7 increased by 4 times a number	**134.** Add: $-25 + 25$
135. Solve: $x/3 - 1 = 4$	**136.** Evaluate: $6 \times 5 - 12 \div 3$
137. Simplify: $(3x^2)(2y)(4x)$	**138.** Multiply: $-8 \cdot -6$

139. Solve: $4(2x + 1) = 28$	**140.** Combine like terms: $10a - 3b - 4a + b$
141. Simplify: $9 - (4x + 2)$	**142.** Solve: $5x + 8 = 3x - 4$
143. Translate into an expression: the sum of three consecutive integers	**144.** Subtract: $-6 - (-19)$
145. Solve: $x/5 = 6$	**146.** Evaluate: $3 + 2[5 + 3(2)]$
147. Simplify: $4x^2 \cdot 3x^3$	**148.** Multiply: $(-2x)(-3x)(x)$
149. Solve: $2x + 3 = x + 3$	**150.** Combine: $-14 + 8 - (-2)$
151. Solve: $3(x + 4) = 2(x + 9)$	**152.** Evaluate $2x^2 + 3x$ when $x = -2$
153. Simplify: $5(x - 2) - (x - 6)$	**154.** Translate into an equation: twice a number, decreased by 5, is 17
155. Add the polynomials: $(2x^2 - 5x + 1) + (x^2 + 5x - 4)$	**156.** Solve: $7 - 2x = -3$
157. Simplify: $(4a^3b^2)^2$	**158.** Multiply: $7 \cdot (-3) \cdot 2$
159. Solve: $9x = 4x + 25$	**160.** Evaluate: $36 \div (4 + 2) + 3 \times 2$
161. Simplify: $-2(x + 5) - 3(2x - 1)$	**162.** Solve: $x + 7 = 2x - 4$
163. Translate: 10 minus the quotient of a number and 4	**164.** Subtract the polynomials: $(3x^2 + 4x - 5) - (x^2 - 2x + 3)$
165. Evaluate $-3a + 2b$ when $a = 4$ and $b = -1$	**166.** Solve: $4x - 6 = 2x + 10$
167. Simplify: $6x^3 \cdot 2x \cdot x^2$	**168.** Multiply: $(-5a^2)(2a)(-a^3)$
169. Solve: $5(2x - 3) = 25$	**170.** Combine like terms: $7 + 3x - 9 - 5x$
171. Simplify: $8 + 2(3x - 4) - x$	**172.** Solve: $6x + 11 = 2x - 5$
173. Translate into an equation: the sum of a number and its double is 36	**174.** Add: $-30 + 17 + (-5)$

175. Solve: $x/2 - 4 = -1$	**176.** Evaluate: $2^3 + 4 \times 3 - 5$
177. Simplify: $(2x^3)^2 \cdot x$	**178.** Multiply: $-4 \cdot (-7) \cdot (-1)$
179. Solve: $3x - 8 = 5x + 2$	**180.** Evaluate $(a + b)^2$ when $a = 3$ and $b = 2$
181. Simplify: $10x - 4(x - 2) - 6$	**182.** Solve: $4(x - 1) = 3(x + 2)$
183. Translate: 5 times the difference of a number and 3	**184.** Subtract: $0 - (-15)$
185. Solve: $x/4 + x/4 = 6$	**186.** Evaluate: $48 \div 8 + 7 \times 2 - 9$
187. Simplify: $(3a^2)(-2a^3)(a)$	**188.** Multiply the polynomials: $2x(3x + 5)$
189. Solve: $7x + 4 = 4x + 19$	**190.** Combine like terms: $5m + 8n - 9m - 3n$
191. Simplify: $-4(2x - 3) + 2(x + 5)$	**192.** Solve: $2(3x + 1) = 4x + 10$
193. Translate into an equation: 6 less than a number is twice the number	**194.** Add the polynomials: $(5a^2 - 3a + 2) + (-2a^2 + a - 7)$
195. Evaluate $4x - 3y + z$ when $x = 2$, $y = -1$, and $z = 5$	**196.** Solve: $8 - 3x = 2x - 7$
197. Simplify: $-3x(2x^2 - 4x + 1)$	**198.** Multiply: $(-6x^3)(-4x^2)(-x)$
199. Solve: $5x + 2(x - 3) = 22$	**200.** The length of a rectangle is 4 cm more than the width. The perimeter is 36 cm. Find the dimensions.

Algebra 1 – Summer Review Packet

Part 1: Foundations – Chapters 1–4 – ANSWER KEY

200 Problems – Teacher Copy

1. 19	**2.** 13x
3. x = 7	**4.** 27
5. −19	**6.** n + 11
7. 3x + 15	**8.** x = 13
9. x^7	**10.** 7y
11. 11	**12.** 16
13. x = 9	**14.** 2n − 5
15. −6a + 14	**16.** 23
17. 5m + 11	**18.** x = 21
19. $8x^5$	**20.** 40
21. x = 5	**22.** 54
23. 3a + 8b	**24.** n + 7 = 19
25. −8	**26.** x = 9
27. 13 − 3x	**28.** 24
29. 5x − 3	**30.** x = −5
31. 6x − 12	**32.** 11
33. x = −9	**34.** n ÷ 6 (or n/6)
35. $7x^2$	**36.** 3
37. x = −15	**38.** $-12x^3$
39. 48	**40.** x = 5
41. 7x + 5	**42.** 3n = 24
43. 5x − 8	**44.** 4
45. x = 7	**46.** 2y
47. −28	**48.** x = 5
49. a^8	**50.** 16
51. x = 6	**52.** x − 8
53. 3n + 8	**54.** 8

55. $x = 0$	**56.** 10
57. $-2x + 24$	**58.** $15a^3b^4$
59. $x = 10$	**60.** $11p + 3q$
61. $x = 6$	**62.** 7
63. $8x + 4$	**64.** $n + (n + 1) = 45$
65. −23	**66.** $x = 7$
67. $9x^4y^2$	**68.** −30
69. $x = 8$	**70.** 30
71. $-5x + 8$	**72.** $x = 5$
73. ½n − 4 (or n/2 − 4)	**74.** $3x^2 + 2x + 5$
75. −2	**76.** $x = -8$
77. $3x + 4y$	**78.** $-12x^6$
79. $x = 5$	**80.** 9
81. $7x + 5$	**82.** 10
83. $x = 5$	**84.** $2(n + 5)$
85. $2x^2 + 6x$	**86.** $x = -7$
87. $6x + (-3)$, i.e. $6x - 3$	**88.** x^8
89. $x = 5$	**90.** 43
91. $a + 10$	**92.** $x = 0$
93. $20 - n$	**94.** −12
95. $x = 18$	**96.** 20
97. $8x^6$	**98.** $12a^5$
99. $x = 5$	**100.** $-3x + 20$
101. $x = 4$	**102.** −3
103. $2x - 1$	**104.** $n - 4 = 10$
105. −8	**106.** $x = -7$
107. $8a^6b^9$	**108.** 18
109. $x = 4$	**110.** 7
111. $4x + 10$	**112.** $x = 0$
113. $6(n + 2)$	**114.** $5a + 3b - 2$

115. 18	**116.** $x = 5$
117. $3x^2$	**118.** $-10x^7$
119. $x = -4$	**120.** $8y + 5$
121. $x + 13$	**122.** 33
123. $x = 4$	**124.** $n \div 3 = 9$ (or $n/3 = 9$)
125. $4x + 7$	**126.** $x = -3$
127. $12 - 8x$	**128.** x^7
129. $x = 4$	**130.** 11
131. $x + 15$	**132.** $x = 3$
133. $7 + 4n$	**134.** 0
135. $x = 15$	**136.** 26
137. $24x^2y$	**138.** 48
139. $x = 3$	**140.** $6a - 2b$
141. $7 - 4x$	**142.** $x = -6$
143. $n + (n + 1) + (n + 2)$	**144.** 13
145. $x = 30$	**146.** 25
147. $12x^5$	**148.** $6x^3$
149. $x = 0$	**150.** -4
151. $x = 6$	**152.** 2
153. $4x - 4$	**154.** $2n - 5 = 17$
155. $3x^2 - 3$	**156.** $x = 5$
157. $16a^6b^4$	**158.** -42
159. $x = 5$	**160.** 12
161. $-8x - 7$	**162.** $x = 11$
163. $10 - n/4$ (or $10 - n \div 4$)	**164.** $2x^2 + 6x - 8$
165. -14	**166.** $x = 8$
167. $12x^6$	**168.** $10a^6$
169. $x = 4$	**170.** $-2x - 2$
171. $5x$	**172.** $x = -4$
173. $n + 2n = 36$	**174.** -18

175. $x = 6$	**176.** 15
177. $4x^7$	**178.** -28
179. $x = -5$	**180.** 25
181. $6x + 2$	**182.** $x = 10$
183. $5(n - 3)$	**184.** 15
185. $x = 12$	**186.** 11
187. $-6a^6$	**188.** $6x^2 + 10x$
189. $x = 5$	**190.** $-4m + 5n$
191. $-6x + 22$	**192.** $x = 4$
193. $n - 6 = 2n$	**194.** $3a^2 - 2a - 5$
195. 16	**196.** $x = 3$
197. $-6x^3 + 12x^2 - 3x$	**198.** $-24x^6$
199. $x = 4$	**200.** width = 7 cm, length = 11 cm

Algebra 1 – Summer Review Packet

Part 2: Chapters 5–9 (Factoring, Rationals, Ratios & Percent, Lines, Systems)

200 Mixed Problems

Name: _____ **Date:** _____

Directions: Complete all problems. Show all work on a separate sheet or in your notebook, and box in your final answers. For "solve the system" problems you may use any method (graphing, substitution, or elimination). Where indicated, state any restrictions on the variable.

1. Factor: $x^2 + 7x + 12$	**2.** Find the slope of the line through (1, 2) and (5, 10).
3. Solve the system: $y = x + 1$, $y = 2x - 3$	**4.** Simplify: $(x^2 - 9)/(x + 3)$, state restrictions
5. Write 0.00056 in scientific notation.	**6.** What is 30% of 80?
7. Factor completely: $5x^2 - 20$	**8.** Write $y = 3x - 4$'s slope and y-intercept.
9. Simplify using positive exponents: x^{-3}	**10.** Factor: $x^2 - 16$
11. Solve: $x^2 - 5x + 6 = 0$	**12.** Solve the system: $x + y = 7$, $x - y = 1$
13. Simplify: $(12x^3y)/(3xy)$	**14.** Write 4.2×10^3 in standard form.
15. Factor: $3x^2 + 11x + 6$	**16.** Find the slope of $y = -2x + 7$.
17. Solve the proportion: $x/6 = 10/15$	**18.** Multiply: $(x + 4)(x - 4)$
19. A \$60 shirt is 25% off. Find the sale price.	**20.** Simplify: $(2/x) + (3/x)$
21. Factor: $x^2 - x - 20$	**22.** Write the equation of the line with slope 2 through $(0, -3)$.
23. Solve the system by elimination: $2x + y = 8$, $x - y = 1$	**24.** Simplify: 7^0
25. Factor: $4x^2 - 25$	**26.** Convert $6x - 2y = 8$ to slope-intercept form.
27. 12 is what percent of 48?	**28.** Simplify: $(x^5)/(x^2)$

29. Solve: $x^2 = 49$	**30.** Multiply: $(3x - 2)(x + 5)$
31. Factor: $2x^2 + 7x + 3$	**32.** Find the slope of the line through $(-2, 4)$ and $(2, -4)$.
33. Solve the system: $y = 2x$, $x + y = 9$	**34.** Simplify: $(3x^2y^4)(2x^3y)$
35. Write 250,000 in scientific notation.	**36.** A number increased by 20% is 84. Find the number.
37. Factor by grouping: $x^3 + 2x^2 + 3x + 6$	**38.** Write the equation of the horizontal line through $(5, -2)$.
39. Simplify using positive exponents: $(2x^{-2})$	**40.** Factor: $x^2 + 10x + 25$
41. Solve: $x^2 + 3x = 0$	**42.** Solve the system: $3x + 2y = 12$, $x = 2$
43. Simplify: $(x^2 - 4)/(x^2 + 4x + 4)$, restrictions	**44.** Write 8.0×10^{-2} in standard form.
45. Factor: $6x^2 - x - 2$	**46.** Find the slope of the vertical line $x = 4$.
47. The angles of a triangle are in the ratio 1 : 2 : 3. Find each angle.	**48.** Multiply: $(4/x) \cdot (x^2/8)$
49. Simplify using positive exponents: $x^4 \cdot x^{-7}$	**50.** Factor: $9x^2 - 1$
51. Factor: $x^2 - 8x + 16$	**52.** Write the equation of the line with slope -1 through $(2, 5)$.
53. Solve the system: $x + y = 10$, $2x + y = 16$	**54.** Simplify: $(10x^4)/(2x^4)$
55. A price rose from \$40 to \$50. Find the percent increase.	**56.** Factor completely: $2x^3 + 8x^2 + 6x$
57. Find the slope of the horizontal line $y = 7$.	**58.** Solve: $(x + 2)(x - 5) = 0$
59. Add: $(1/3) + (x/3)$	**60.** Write 0.00000071 in scientific notation.

61. Factor: $x^2 - 49$	**62.** Find the slope and y-intercept of $2x + y = 5$.
63. Solve the system by substitution: $y = x - 2$, $3x + y = 10$	**64.** Simplify: $(15x^2y^3)/(5xy)$
65. What percent of 200 is 50?	**66.** Factor: $x^2 + 2x - 15$
67. Write the equation of the line through (0, 4) and (2, 8).	**68.** Simplify: $(x^2 + 5x + 6)/(x + 2)$, restrictions
69. Solve: $2x^2 - 8 = 0$	**70.** Multiply: $(2x + 3)^2$
71. Factor: $3x^2 - 12$	**72.** Find the slope through (3, 1) and (3, 7).
73. Solve the system: $2x + 3y = 13$, $x - y = -1$	**74.** Simplify: $(8x^6)/(2x^2)$
75. Write 9.3×10^5 in standard form.	**76.** A coat marked \$80 is discounted 15%. Find the sale price.
77. Factor: $x^2 - 6x + 9$	**78.** Write the equation of the vertical line through $(-3, 6)$.
79. Simplify: $(x/4) \div (x^2/8)$	**80.** Solve: $x^2 + x - 12 = 0$
81. Factor: $2x^2 + 5x - 3$	**82.** Find the slope of the line through $(-1, -2)$ and (3, 6).
83. Solve the system: $y = 3x - 1$, $y = x + 5$	**84.** Simplify using positive exponents: $(x^3y^{-2})/(x^{-1}y)$
85. Write 0.00045 in scientific notation.	**86.** 45 is what percent of 90?
87. Factor completely: $4x^2 - 36$	**88.** Convert $4x + 2y = 10$ to slope-intercept form.
89. Simplify: $(3x - 6)/(x - 2)$, restrictions	**90.** Solve: $x^2 = 100$
91. Factor: $x^2 - 3x - 10$	**92.** Write the equation of the line with slope 1/2 through (0, 0).

93. Solve the system by elimination: $3x + y = 9$, $2x - y = 1$	**94.** Simplify: $(6x^2 + 9x)/(3x)$, restrictions
95. Write 1.2×10^{-3} in standard form.	**96.** A number decreased by 10% is 45. Find the number.
97. Factor: $x^2 - 100$	**98.** Find the slope of $y = 5$.
99. Multiply: $(2/x) \cdot (3/y)$	**100.** Solve: $x(x - 4) = 0$
101. Factor: $4x^2 + 4x + 1$	**102.** Find the slope through (0, 5) and (4, 1).
103. Solve the system: $x + 2y = 7$, $3x - 2y = 5$	**104.** Simplify: $(x^4y^2)^2$
105. What is 15% of 60?	**106.** Factor: $x^2 + 6x + 8$
107. Write the equation of the line through (1, 3) with slope 4.	**108.** Simplify: $(x^2 - 25)/(x - 5)$, restrictions
109. Solve: $3x^2 - 27 = 0$	**110.** Multiply: $(x - 6)(x + 6)$
111. Factor: $5x^2 + 13x - 6$	**112.** Find the slope through (−4, 2) and (2, 2).
113. Solve the system: $y = -x + 6$, $y = 2x - 3$	**114.** Simplify: $(-2x^2)^3$
115. Write 73,000 in scientific notation.	**116.** A \$200 item is marked up 30%. Find the new price.
117. Factor completely: $x^3 - 9x$	**118.** Convert $3x - y = 6$ to slope-intercept form.
119. Simplify: $(x + 3)/(x^2 + 6x + 9)$, restrictions	**120.** Solve: $x^2 - 2x - 8 = 0$
121. Factor: $x^2 - 11x + 24$	**122.** Write the equation of the line through (0, −1) and (3, 5).
123. Solve the system: $4x + y = 10$, $2x + y = 6$	**124.** Simplify: $(20x^5)/(4x^2)$

125. 60 is what percent of 240?	**126.** Factor: $x^2 + 8x + 12$
127. Find the slope of $x = -5$.	**128.** Subtract: $(5/x) - (2/x)$
129. Solve: $x^2 + 7x + 10 = 0$	**130.** Multiply: $(5x + 1)(x - 2)$
131. Factor: $16x^2 - 9$	**132.** Find the slope through (2, −3) and (6, 5).
133. Solve the system: $x - y = 4$, $x + y = 10$	**134.** Simplify using positive exponents: $(3x^{-2})^2$
135. Write 5.4×10^{-1} in standard form.	**136.** A price dropped from \$90 to \$72. Find the percent decrease.
137. Factor: $x^2 - 5x - 14$	**138.** Write the equation of the line through the origin with slope −3.
139. Simplify: $(x^2 - 1)/(x + 1)$, restrictions	**140.** Solve: $2x^2 = 18$
141. Factor completely: $3x^2 + 6x - 24$	**142.** Find the slope through (−3, 1) and (1, 9).
143. Solve the system: $2x + 5y = 1$, $x = 3$	**144.** Simplify: $(12x^4y^2)/(4x^2y^2)$
145. What is 40% of 150?	**146.** Factor: $x^2 + 4x - 21$
147. Find the slope and y-intercept of $y = (3/4)x - 2$.	**148.** Multiply: $(x^2/6) \cdot (3/x)$
149. Solve: $x^2 - 6x + 8 = 0$	**150.** Multiply: $(3x + 4)(3x - 4)$
151. Factor: $7x^2 - 28$	**152.** Write the equation of the line with slope −2/3 through (0, 1).
153. Solve the system: $3x - 2y = 4$, $3x + y = 13$	**154.** Simplify using positive exponents: $(4x^3)/(x^5)$
155. Write 0.000302 in scientific notation.	**156.** A number increased by 50% is 90. Find the number.

157. Factor: $x^2 + x - 6$	**158.** Convert $x + y = 5$ to slope-intercept form.
159. Simplify: $(4x - 8)/(x^2 - 4)$, restrictions	**160.** Solve: $x^2 - 9x + 20 = 0$
161. Factor: $2x^2 - 18$	**162.** Find the slope through (5, 2) and (1, 10).
163. Solve the system: $y = x + 4$, $2x + y = 13$	**164.** Simplify: $(x^3 y^4 z)/(x y^2)$
165. Evaluate: $(-2)^{-3}$	**166.** A $150 bike is 20% off. Find the sale price.
167. Factor: $x^2 - 13x + 40$	**168.** Write the equation of the line through (2, 7) and (4, 11).
169. Simplify: $(x^2 + 7x)/(x)$, restrictions	**170.** Solve: $5x^2 - 20 = 0$
171. Factor: $25x^2 - 16$	**172.** Find the slope through (−2, 5) and (4, −7).
173. Solve the system: $x + y = 12$, $x - y = 4$	**174.** Simplify: $(2x^2y)^3$
175. Write 8.6×10^4 in standard form.	**176.** 18 is what percent of 72?
177. Factor completely: $5x^3 - 5x$	**178.** Write the equation of the line with slope 5 through (1, −2).
179. Simplify: $(x^2 - 36)/(x + 6)$, restrictions	**180.** Solve: $x^2 - 4x - 21 = 0$
181. Factor: $x^2 - 14x + 49$	**182.** Find the slope and y-intercept of $5x - y = 3$.
183. Solve the system: $2x + y = 5$, $3x - y = 10$	**184.** Simplify: $(9x^4)/(3x^2y)$
185. Write 0.0000064 in scientific notation.	**186.** A number decreased by 25% is 60. Find the number.
187. Factor: $3x^2 + 10x + 8$	**188.** Convert $2x - 4y = 8$ to slope-intercept form.

189. Simplify: $(x^2 + 4x + 4)/(x + 2)$, restrictions	**190.** Solve: $x^2 + 8x + 16 = 0$
191. Factor completely: $2x^4 - 32$	**192.** Find the slope through $(1, -1)$ and $(5, 7)$.
193. Solve the system: $4x + 3y = 18$, $2x - 3y = 0$	**194.** Simplify using positive exponents: $(x^{-2}y^3)^{-2}$
195. Write 4.05×10^6 in standard form.	**196.** The sum of two numbers is 25 and their difference is 7. Find the numbers.
197. Factor: $x^2 - 2x - 35$	**198.** Write the equation of the line through $(0, 2)$ and $(4, 0)$.
199. Simplify: $(6x^2 - 12x)/(6x)$, restrictions	**200.** The sum of two numbers is 40. One is 4 times the other. Find the numbers.

Algebra 1 – Summer Review Packet

Part 2: Chapters 5–9 – ANSWER KEY

200 Problems – Teacher Copy

1. $(x + 3)(x + 4)$	**2.** 2
3. (4, 5)	**4.** $x - 3;\ x \neq -3$
5. 5.6×10^{-4}	**6.** 24
7. $5(x - 2)(x + 2)$	**8.** slope = 3, y-intercept = −4
9. $1/x^3$	**10.** $(x - 4)(x + 4)$
11. $x = 2$ or $x = 3$	**12.** (4, 3)
13. $4x^2$	**14.** 4200
15. $(3x + 2)(x + 3)$	**16.** −2
17. $x = 4$	**18.** $x^2 - 16$
19. \$45	**20.** $5/x$
21. $(x - 5)(x + 4)$	**22.** $y = 2x - 3$
23. (3, 2)	**24.** 1
25. $(2x - 5)(2x + 5)$	**26.** $y = 3x - 4$
27. 25%	**28.** x^3
29. $x = 7$ or $x = -7$	**30.** $3x^2 + 13x - 10$
31. $(2x + 1)(x + 3)$	**32.** −2
33. (3, 6)	**34.** $6x^5y^5$
35. 2.5×10^5	**36.** 70
37. $(x^2 + 3)(x + 2)$	**38.** $y = -2$
39. $2/x^2$	**40.** $(x + 5)^2$
41. $x = 0$ or $x = -3$	**42.** (2, 3)
43. $(x - 2)/(x + 2);\ x \neq -2$	**44.** 0.08
45. $(3x - 2)(2x + 1)$	**46.** undefined
47. 30°, 60°, 90°	**48.** $x/2$
49. $1/x^3$	**50.** $(3x - 1)(3x + 1)$
51. $(x - 4)^2$	**52.** $y = -x + 7$
53. (6, 4)	**54.** 5

55. 25%	**56.** $2x(x + 1)(x + 3)$
57. 0	**58.** $x = -2$ or $x = 5$
59. $(x + 1)/3$	**60.** 7.1×10^{-7}
61. $(x - 7)(x + 7)$	**62.** slope = −2, y-intercept = 5
63. (3, 1)	**64.** $3xy^2$
65. 25%	**66.** $(x + 5)(x - 3)$
67. $y = 2x + 4$	**68.** $x + 3;\ x \neq -2$
69. $x = 2$ or $x = -2$	**70.** $4x^2 + 12x + 9$
71. $3(x - 2)(x + 2)$	**72.** undefined
73. (2, 3)	**74.** $4x^4$
75. 930000	**76.** $68
77. $(x - 3)^2$	**78.** $x = -3$
79. $2/x$	**80.** $x = 3$ or $x = -4$
81. $(2x - 1)(x + 3)$	**82.** 2
83. (3, 8)	**84.** x^4/y^3
85. 4.5×10^{-4}	**86.** 50%
87. $4(x - 3)(x + 3)$	**88.** $y = -2x + 5$
89. $3;\ x \neq 2$	**90.** $x = 10$ or $x = -10$
91. $(x - 5)(x + 2)$	**92.** $y = (1/2)x$
93. (2, 3)	**94.** $2x + 3;\ x \neq 0$
95. 0.0012	**96.** 50
97. $(x - 10)(x + 10)$	**98.** 0
99. $6/(xy)$	**100.** $x = 0$ or $x = 4$
101. $(2x + 1)^2$	**102.** −1
103. (3, 2)	**104.** x^8y^4
105. 9	**106.** $(x + 2)(x + 4)$
107. $y = 4x - 1$	**108.** $x + 5;\ x \neq 5$
109. $x = 3$ or $x = -3$	**110.** $x^2 - 36$
111. $(5x - 2)(x + 3)$	**112.** 0
113. (3, 3)	**114.** $-8x^6$

115. 7.3×10^4	**116.** $260
117. $x(x - 3)(x + 3)$	**118.** $y = 3x - 6$
119. $1/(x + 3)$; $x \neq -3$	**120.** $x = 4$ or $x = -2$
121. $(x - 3)(x - 8)$	**122.** $y = 2x - 1$
123. (2, 2)	**124.** $5x^3$
125. 25%	**126.** $(x + 2)(x + 6)$
127. undefined	**128.** $3/x$
129. $x = -2$ or $x = -5$	**130.** $5x^2 - 9x - 2$
131. $(4x - 3)(4x + 3)$	**132.** 2
133. (7, 3)	**134.** $9/x^4$
135. 0.54	**136.** 20%
137. $(x - 7)(x + 2)$	**138.** $y = -3x$
139. $x - 1$; $x \neq -1$	**140.** $x = 3$ or $x = -3$
141. $3(x + 4)(x - 2)$	**142.** 2
143. (3, −1)	**144.** $3x^2$
145. 60	**146.** $(x + 7)(x - 3)$
147. slope = 3/4, y-intercept = −2	**148.** $x/2$
149. $x = 2$ or $x = 4$	**150.** $9x^2 - 16$
151. $7(x - 2)(x + 2)$	**152.** $y = (-2/3)x + 1$
153. (10/3, 3)	**154.** $4/x^2$
155. 3.02×10^{-4}	**156.** 60
157. $(x + 3)(x - 2)$	**158.** $y = -x + 5$
159. $4/(x + 2)$; $x \neq 2$, $x \neq -2$	**160.** $x = 4$ or $x = 5$
161. $2(x - 3)(x + 3)$	**162.** −2
163. (3, 7)	**164.** $x^2 y^2 z$
165. −1/8	**166.** $120
167. $(x - 5)(x - 8)$	**168.** $y = 2x + 3$
169. $x + 7$; $x \neq 0$	**170.** $x = 2$ or $x = -2$
171. $(5x - 4)(5x + 4)$	**172.** −2
173. (8, 4)	**174.** $8x^6y^3$

175. 86000	**176.** 25%
177. $5x(x - 1)(x + 1)$	**178.** $y = 5x - 7$
179. $x - 6;\ x \neq -6$	**180.** $x = 7$ or $x = -3$
181. $(x - 7)^2$	**182.** slope = 5, y-intercept = −3
183. $(3, -1)$	**184.** $3x^2/y$
185. 6.4×10^{-6}	**186.** 80
187. $(3x + 4)(x + 2)$	**188.** $y = (1/2)x - 2$
189. $x + 2;\ x \neq -2$	**190.** $x = -4$
191. $2(x^2 + 4)(x - 2)(x + 2)$	**192.** 2
193. $(3, 2)$	**194.** x^4/y^6
195. 4050000	**196.** 16 and 9
197. $(x - 7)(x + 5)$	**198.** $y = (-1/2)x + 2$
199. $x - 2;\ x \neq 0$	**200.** 32 and 8