

Summer Math Packet for Students Entering Algebra

- Do not use a calculator
- Show all work
- Packets will be collected the 1st week of school.
- When you have completed problems 1 – 120, transfer your answers to page 13 of the packet (last page).

ADDING AND SUBTRACTING POSITIVE AND NEGATIVE NUMBERS

Evaluate each expression.

1. $3 - (-8) = \underline{\hspace{2cm}}$

2. $(-8) - (-2) = \underline{\hspace{2cm}}$

3. $(-27) - 24 = \underline{\hspace{2cm}}$

4. $(-11) - 8 + 1 - (-6) = \underline{\hspace{2cm}}$

5. $\left(-\frac{3}{2}\right) + \frac{8}{5} = \underline{\hspace{2cm}}$

6. $(-7) - (-2) - 9 = \underline{\hspace{2cm}}$

7. $10 - (-10) - 7 - 5 = \underline{\hspace{2cm}}$

8. $\frac{2}{5} - \frac{4}{5} = \underline{\hspace{2cm}}$

ADDING POSITIVE AND NEGATIVE NUMBERS

Find each sum.

9. $(-7) + 9 = \underline{\hspace{2cm}}$

10. $(-4.7) + 5.7 = \underline{\hspace{2cm}}$

11. $2 + \left(-\frac{1}{4}\right) = \underline{\hspace{2cm}}$

12. $(-5) + (-8) + (-2) + 1 = \underline{\hspace{2cm}}$

13. $(-5) + (-7.1) = \underline{\hspace{2cm}}$

MULTIPLYING AND DIVIDING POSITIVES AND NEGATIVES

Find each quotient.

14. $48 \div 6 = \underline{\hspace{2cm}}$

15. $-85 \div (-17) = \underline{\hspace{2cm}}$

16. $-180 \div (15) = \underline{\hspace{2cm}}$

17. $9(-7) = \underline{\hspace{2cm}}$

18. $6(-5)(+3) = \underline{\hspace{2cm}}$

19. $8(-6)(-3) = \underline{\hspace{2cm}}$

20. $-12 \div 12 = \underline{\hspace{2cm}}$

21. $12 \div (-3) = \underline{\hspace{2cm}}$

22. $234 \div (-13) = \underline{\hspace{2cm}}$

Find each product.

23. $-6 (+ 4) =$ _____

24. $-9 (-3) =$ _____

25. $-3 (+ 6) (-6) =$ _____

VARIABLE AND VERBAL EXPRESSIONS

Write each as an algebraic or verbal expression.

26. u decreased by 17

27. x increased by 6

28. twice q

29. $\frac{x}{2}$

30. half of 14

31. the product of x and 7

32. n cubed

33. 5n

34. the quotient of x and 8

35. 10 less than 17

EVALUATING EXPRESSIONS

Evaluate each using the values given.

36. $p^2 + m$;
Use $m = 1$, and $p = 5$

37. $m + p \div 5$;
Use $m = 1$, and $p = 5$

38. $z(x + y)$;
Use $x = 6$, $y = 8$, and $z = 6$

39. $p^2 m \div 4$;
Use $m = 4$, and $p = 7$

40. $z - (y \div 3 - 1)$;
Use $y = 3$, and $z = 7$

41. $a - 5 - b$;
Use $a = 10$, and $b = 4$

42. $y^2 - x$;
Use $x = 7$, and $y = 8$

43. $x + y + y$;
Use $x = 9$, and $y = 10$

44. $y - (z + z^2)$;
Use $y = 10$, and $z = 2$

45. $2(p + 4) - (m + n)$;
Use $m = 4$, $n = 2$, and $p = 5$

46. $pn + (n + m)^2$;
Use $m = 1$, $n = 4$, and $p = 6$

47. $y - z + xz \div 6$;
Use $x = 3$, $y = 4$, and $z = 4$

48. $c \frac{bc}{4} - (7 - a)$ Use $a = 4$, $b = 8$, and $c = 5$

49. $(a^2 - b) \div 6$;
Use $a = 5$, and $b = 1$

50. $x^3 \div 3 - y$;
Use $x = 3$, and $y = 1$

ORDER OF OPERATIONS

Evaluate each expression.

51. $20 \div (4 - (10 - 8)) =$

52. $7 + 10 \times 5 + 10 =$

53. $(6 - 4) \times 49 \div 7 =$

54. $\frac{43 - 1}{4 + 2} + 10 =$

55. $8 \times \frac{15}{5} - (5 + 9) =$

56. $(2 + 6 \times 2 + 2 - 4) \times 2 =$

57. $2 + 7 \times 5 =$

58. $9 - 32 \div 4 =$

59. $\frac{45}{8(5 - 4) - 3} =$

60. $\frac{49}{7} \times \frac{60}{2 \times 5} =$

| | | | |
|-----|-------------------------------|-----|-----------------------------|
| 61. | $-6k + 7k =$ _____ | 62. | $5n + 11n =$ _____ |
| 63. | $12r + 5 + 3r - 5 =$ _____ | 64. | $-4x - 10x =$ _____ |
| 65. | $-2x + 11 + 6x =$ _____ | 66. | $n + 4 - 9 - 5n =$ _____ |
| 67. | $-3x - 9 + 15x =$ _____ | 68. | $-16n - 14n =$ _____ |
| 69. | $-4 + 7(1 - 3m) =$ _____ | 70. | $4n - n =$ _____ |

USING THE DISTRIBUTIVE PROPERTY

Simplify each expression.

| | | | |
|-----|--------------------------|-----|----------------------------|
| 71. | $-6(a + 8) =$ _____ | 72. | $(1 - 7n)5 =$ _____ |
| 73. | $-4(-8x - 8) =$ _____ | 74. | $5(n + 6) =$ _____ |
| 75. | $3(5 + 5x) =$ _____ | 76. | $(9m + 10)2 =$ _____ |
| 77. | $8(-b - 4) =$ _____ | 78. | $(-6p + 7)(-4) =$ _____ |
| 79. | $-6(7 + x) =$ _____ | 80. | $-8(1 - 5x) =$ _____ |

ONE-STEP EQUATIONS WITH INTEGERS

Solve each equation.

81. $-40 = -5p$

82. $\frac{x}{5} = 2$

83. $-13m = -377$

84. $-19 = b - 6$

85. $\frac{x}{15} = 11$

86. $k + 1 = -27$

87. $\frac{x}{1.2} = -7$

88. $n - 25.4 = -44.8$

89. $n + 4.7 = -4.7$

90. $28.8 = 18x$

PROPORTIONS

State if each pair of ratios forms a proportion.

91. $\frac{4}{3}$ and $\frac{16}{12}$

92. $\frac{4}{3}$ and $\frac{8}{6}$

Solve each proportion.

93. $\frac{10}{k} = \frac{8}{4}$

94. $\frac{m}{10} = \frac{10}{3}$

95. $\frac{8n}{8} = \frac{8}{3}$

96. $\frac{p}{8} = \frac{13}{2}$

97. $\frac{v}{12} = \frac{10}{2}$

98. $\frac{6}{a} = \frac{3}{8}$

99. $\frac{3}{13} = \frac{v}{3}$

100. $\frac{6}{14} = \frac{5}{n}$

Find each unit rate.

101. \$525 for 20 hours work

Find each unit price and tell which is the better buy.

102. \$7.47 for 3 yards of fabric
\$11.29 for 5 yards of fabric

103. Tyler scored 21 goals in 7 soccer games. At this rate, about how many did he score each game?

104. Georgia drove a total of 252 miles and used 12 gallons of gasoline. What is this rate in miles per gallon?

PERCENT WORD PROBLEMS

Solve each problem

105. 46 is what percent of 107?

106. What is 270% of 60?

107. 87% of 41 is what?

108. 81 is 56% of what?

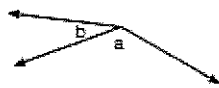
109. 17% of what is 156?

110. 25 is what percent of 37?

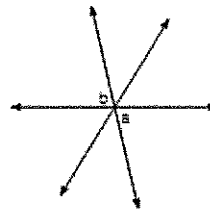
ANGLE PAIR RELATIONSHIPS

Name the relationship: complementary, vertical, adjacent, corresponding alternate interior, alternate exterior

111.



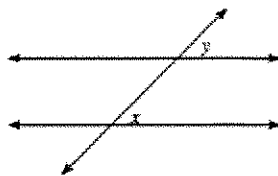
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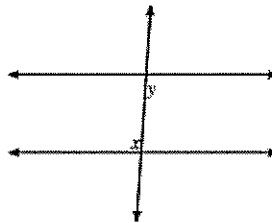
PARALLEL LINES AND TRANSVERSALS

Identify each pair of angles as corresponding, alternate interior or alternate exterior.

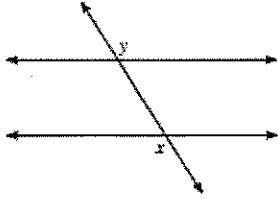
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114.



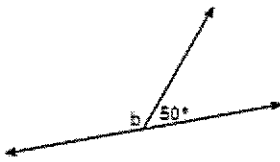
115.



ANGLE PAIR RELATIONSHIPS

Find the measure of angle b.

116.

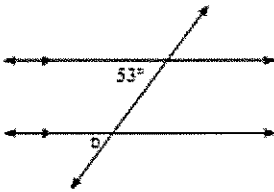


117.

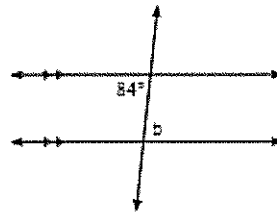


Find the measure of each angle indicated.

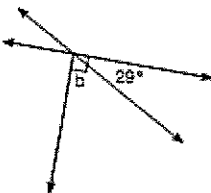
118.



119.



120.



121. FRACTION TO DECIMAL TO PERCENT CHART

| Fraction in simplest form | Decimal | Percent |
|---------------------------|--------------|--------------|
| 1/10 | | |
| | 0.125 | |
| | | 20% |
| | 0.25 | |
| 3/10 | | |
| 1/3 | | |
| | | 37.5% |
| | 0.4 | |
| | | 50% |
| 3/5 | | |
| | 0.625 | |
| 7/10 | | |
| | | 80% |
| 7/8 | | |
| | 0.90 | |
| 1/1 | | |

ANSWER SHEET

Name: _____

| | | | |
|-----|-----|-----|------|
| 1. | 31. | 61. | 91. |
| 2. | 32. | 62. | 92. |
| 3. | 33. | 63. | 93. |
| 4. | 34. | 64. | 94. |
| 5. | 35. | 65. | 95. |
| 6. | 36. | 66. | 96. |
| 7. | 37. | 67. | 97. |
| 8. | 38. | 68. | 98. |
| 9. | 39. | 69. | 99. |
| 10. | 40. | 70. | 100. |
| 11. | 41. | 71. | 101. |
| 12. | 42. | 72. | 102. |
| 13. | 43. | 73. | 103. |
| 14. | 44. | 74. | 104. |
| 15. | 45. | 75. | 105. |
| 16. | 46. | 76. | 106. |
| 17. | 47. | 77. | 107. |
| 18. | 48. | 78. | 108. |
| 19. | 49. | 79. | 109. |
| 20. | 50. | 80. | 110. |
| 21. | 51. | 81. | 111. |
| 22. | 52. | 82. | 112. |
| 23. | 53. | 83. | 113. |
| 24. | 54. | 84. | 114. |
| 25. | 55. | 85. | 115. |
| 26. | 56. | 86. | 116. |
| 27. | 57. | 87. | 117. |
| 28. | 58. | 88. | 118. |
| 29. | 59. | 89. | 119. |
| 30. | 60. | 90. | 120. |