

**Summer Math Packet For Algebra Students**

Evaluate the expression when  $y = 24$  and  $z = 8$ .

1.  $\frac{y}{z}$

Evaluate the power.

2.  $1.5^4$

Evaluate the expression.

3.  $40 \div [(14 + 6) \cdot 2]$

Evaluate the expression when  $r = 5$  and  $s = 8$ .

4.  $(r + 2)^2 - s$

Order the integers from least to greatest.

5.  $-56, -102, 98, -58, 114$

Find the sum.

6.  $23 + (-37) + 4$

7. What is the value of  $5 - x - (-y)$  when  $x = 7$  and  $y = -2$ ?

Find the product or quotient.

8.  $-5(14)$

9.  $5\frac{8}{11} \div \left(-\frac{3}{4}\right)$

The following temperatures were taken during a week in December in Nome, Alaska. What is the mean temperature to the nearest degree?

10.  $-5^\circ\text{F}, -8^\circ\text{F}, -13^\circ\text{F}, -16^\circ\text{F}, -8^\circ\text{F}, 11^\circ\text{F}, 0^\circ\text{F}$

Evaluate the expression using mental math. Name the property or properties used.

11.  $(-15 \cdot 5) \cdot (-20)$

Write an equivalent variable expression.

12.  $(2 - 12c)(-1)$

Simplify the expression.

13.  $5(n - 1) - 3n + 6$

14.  $-\frac{18m^4}{7} \cdot \frac{14m^9}{24}$

15.  $\sqrt{\frac{7a^2}{28}}$

Solve the equation using mental math.

16.  $64 = -8a$

Solve the equation. Check your solution.

17.  $x + 12 = 9$

18.  $-2 = w - 19$

19.  $-48 = -3y$

20.  $\frac{t}{31} = 14$

21.  $x + 5 = 2.7$

22.  $19z + 5 = -14$

23.  $7(12 - r) = -84$

24.  $7y + 11 - 12y = -19$

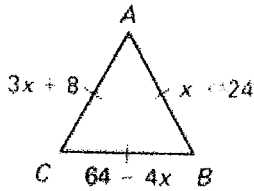
Perform the indicated operation.

25.  $15.12 + (-2.8)$

Write and solve an equation.

26. A bookstore offers three books in a set for \$21.75. Each book costs the same amount. How much does each book cost?

All three sides of the triangle have equal length. What is the perimeter?



- 27.

Solve the inequality.

28.  $5 > \frac{a}{-2}$

29. You are selling magazine subscriptions for a school fundraiser. If you sell at least 75 subscriptions in 2 weeks you win a prize. You sold 26 subscriptions in one week. What is the mean number of subscriptions you have to sell per day to sell at least 75 total?

Plot the points listed below in the same coordinate plane. Describe any pattern you see in the graph.

30.  $(-3, -4)$ ,  $(-2, -2)$ ,  $(-1, 0)$ ,  $(0, 2)$ ,  $(1, 4)$ ,  $(2, 6)$

For the given expression, identify the terms, like terms, coefficients, and constant terms. Then simplify the expression.

31.  $x + 5 - 9 - 7x$

Solve the inequality. Then graph the solution.

32.  $y + 5 > 3$

33.  $n - 4 \leq 0$

34.  $w - 4(w + 5) < -8$

35.  $9c - 8 \leq 3c + 16$

Use the fact that  $\triangle TOP \cong \triangle LID$  to complete the statement.

36.  $\angle T \cong \underline{\hspace{1cm}} ?$

Find all the factors of the number.

37. 84

Write the prime factorization of the number.

38. 84

Find the greatest common factor of the monomials.

39.  $12a^2, 18ab$

Write the fraction in simplest form.

40.  $\frac{32a^2}{36a^3}$

41. One serving of rice pilaf has 220 calories, including 35 calories from fat. One serving of soup has 70 calories, including 15 calories from fat. Write the calories from fat as a fraction of the total calories for each food. Which food has a greater fraction of calories from fat?

Find the least common multiple of the monomials.

42.  $5x^2y, 21xy^3$

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

43.  $5n^7 \cdot 6n$

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

44.  $\frac{2x^4 \cdot 6x^7}{21x^3}$

Simplify. Write the expression using only positive exponents.

45.  $c^{-1} \cdot c^{-7}$

46. How is 0.000872 written in scientific notation?

Write the product in scientific notation.

47.  $(8.1 \times 10^4)(9.2 \times 10^8)$

48. Write the decimal 0.375 as a fraction in simplest form.

Order the numbers from least to greatest.

49.  $2\frac{3}{10}, \frac{11}{5}, 2.32, \frac{5}{2}, 2.25, 2$

50. A quarter's width is about  $\frac{15}{16}$  inch. A dime's width is about  $\frac{11}{16}$  inch. How much wider is a quarter?

Find the sum or difference.

51.  $\frac{5v}{3} + \frac{4v}{5}$

52. You have hiked  $2\frac{1}{10}$  miles of a 5 mile trail. How much farther must you hike?

Solve the equation.

53.  $\frac{1}{4}x - \frac{5}{6} = \frac{11}{12}$

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

54.

$$\frac{2}{3} - \frac{5}{2}k \geq \frac{17}{30}$$

55.  $-11 = 8.22w - 63.608$

Write the equivalent rate.

56.  $\frac{286.8 \text{ m}}{\text{min}} = \frac{? \text{ m}}{\text{sec}}$

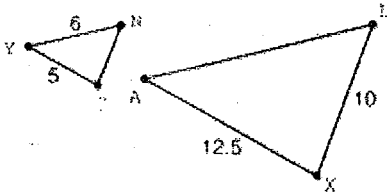
Write the rate as a unit rate.

57.  $\frac{448 \text{ cycles}}{5 \text{ days}}$

Solve the proportion.

58.  $\frac{48}{36} = \frac{x}{6}$

59.  $\frac{t-3}{12} = \frac{5}{8}$

Use the fact that  $\triangle NYC \sim \triangle LAX$ .

60. Find  $NC$  and  $LA$ .
61. A 20 foot flagpole stands beside a building. The flagpole casts a shadow that is 25 feet long. At the same time, the building casts a shadow that is 60 feet long. How tall is the building?
62. The scale drawing of a rectangular park has a scale factor of 1 cm to 74 m. The drawing is 11 cm by 18 cm. What are the actual dimensions of the park?

A box contains 9 tiles that together spell the word "TENNESSEE." You draw at random one tile from the box. Find the probability of the event.

63. Drawing an E

Write the percent as a decimal and as a fraction.

64. 8%

Use a proportion to answer the question.

65. 44 is what percent of 80?

Write the fraction as a percent.

- 66.

$\frac{7}{18}$

Write the decimal as a percent.

67. 2.07

68. In a survey, 34%, or 102 people, said they enjoy in-line skating. How many people were surveyed? Use a proportion to answer the question.

Use the percent equation to answer the question.

69. What number is 0.7% of 60?
70. A crowd of 280 people grows to a crowd of 315 people. What is the percent of increase?

Find the new amount.

71. Decrease 650 by 21%.
72. An item with a wholesale price of \$8.40 is marked up 60%. What is the retail price?

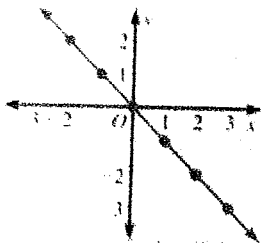
Use the given information to find the new amount.

73. Food bill: \$38  
Sales tax: 5%
74. You deposit \$1350 into a savings account that pays a simple annual interest rate of 2.8%. How much interest will you earn in 15 months?

Tell whether the ordered pair is a solution of the equation  $12x + 3y = 21$ .

75.  $(2, -15)$

Write the coordinates of two points on the line. Then find the slope of the line.



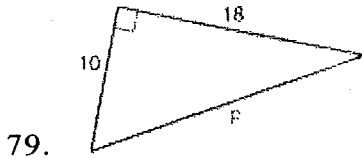
76.

77. Write an equation of a line that is perpendicular to  $y = -2x + 6$  and passes through  $(-4, 7)$ .

Solve the equation. Round to the nearest tenth if necessary.

78.  $102 = 3k^2$

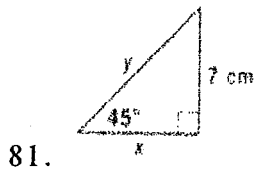
Find the unknown length. Write your answer in simplest form.



Determine whether the triangle with the given side lengths is a right triangle.

80. 28, 96, 100

Find the value of each variable. Give exact answers.



Graph the relation. Then tell whether the relation is a function.

82.

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

Graph the linear equation.

83.  $y = 8$

Name the  $x$ - and  $y$ -intercepts. Then sketch a quick graph of the line.

84.  $2x + y = 4$

Find the slope and the  $y$ -intercept of the graph of the equation. Then graph the equation.

85.  $y = -\frac{1}{4}x$

Graph the inequality in a coordinate plane.

86.  $3x - 7y \geq 21$

Graph each pair of numbers on a number line. Then copy and complete the statement with  $<$ ,  $>$ , or  $=$ .

87.  $-11$  ?  $-\sqrt{11}$



The measures of two angles of a triangle are given. Tell whether the triangle is *acute*, *right*, or *obtuse*.

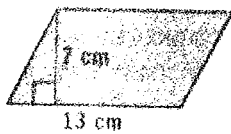
88.  $54^\circ, 36^\circ$

Decide whether the figure is a polygon. If it is, name it.

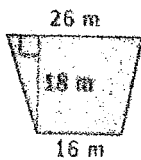


89.

Find the area of the parallelogram or trapezoid.

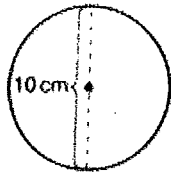


90.



91.

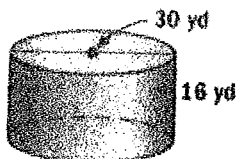
Find the circumference and area of the circle. Use 3.14 for  $\pi$ .



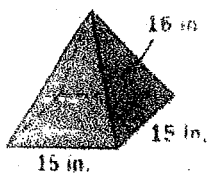
92.

93. You plan to paint the 4 walls and ceiling of a rectangular room with dimensions 15 feet by 12 feet by 8 feet. A can of paint covers 400 square feet. How many cans of paint will you need?

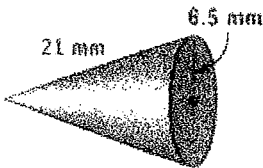
Find the surface area of the solid. Round to the nearest tenth.



94.



95.



96.

97. A stick of pepperoni is a cylinder, with a radius of 2 centimeters and a length of 12 centimeters. If a slice of pepperoni is 1 cubic centimeter, how many whole slices can be made?
98. You have 12 cubic inches of candle wax. You have a mold for a square pyramid candle that has a base side length of 3 inches and a height of 5 inches. Do you have enough wax to make this candle? Explain.

**Which is an appropriate display for the data in the table below?**

99.

Favorite Sport	Percentage of students
Football	17%
Baseball	28%
Basketball	39%
Soccer	8%