8th Grade Pre-Algebra Summer Assignment

Evaluate the expression when $x = 5$, $y = 20$, and $z = 2$.

1 $\frac{x+y}{12-z}$

2 Hiro plans to paint baskets. The paint costs $14.50. The baskets cost $7.25 each. Write an expression that models the cost for *x* baskets. Determine the cost of four baskets.

Find the absolute value of the number.

3 -10

Evaluate the expression when $a = -6$, $b = -13$ and $c = 4$.

4 $c + b$

5 An elevator started on the 14th floor. It went down 7 floors, up 4 floors, up 9 floors, and down 3 floors. On what floor did the elevator finally stop?

Find the difference.

6 $-22 - (-6)$

Find the change in temperature.

7 From $-1°\text{F}$ to $-20°\text{F}$

8 The forecast predicts that the temperature will change from 15° Fahrenheit to −3° Fahrenheit on Saturday.
a. Write an expression that represents the change in temperatures for Saturday.
b. What is the expected temperature change?
c. If the temperature actually changes by 5° Fahrenheit more than predicted, what will be the change in temperature?

Find the product.

9 $-7(3)(-1)$

10 A deep-sea diver must descend and ascend in short steps to equalize pressure on her body. If the diver rises toward the surface too quickly, she may suffer from a physical condition called "the bends." Suppose the diver descends to the bottom in three steps of 12 feet each. Write and simplify an expression to describe the diver's change in elevation.

11 You are playing a board game. All even numbers are positive, and all odd numbers are negative. A positive number indicates forward movement, and a negative number indicates backward movement. During your last 10 turns, you have gone back 90 spaces. If you spun the same number each time, which number did you spin?

Without performing the indicated division, complete the statement using $>$, $<$, or $=$.

12 $-72 \div -9 \_\_?\_\_ -72 \div 9$

13 **EXTENDED RESPONSE**

Consider the expressions $(-2)^2$ and $(-2)^3$.

a. Evaluate $(-2)^2$.

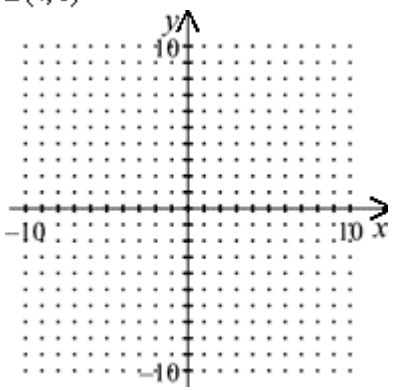
b. Evaluate $(-2)^3$.

c. If a negative number is raised to an even exponent, what's the sign of the answer? How do you know?

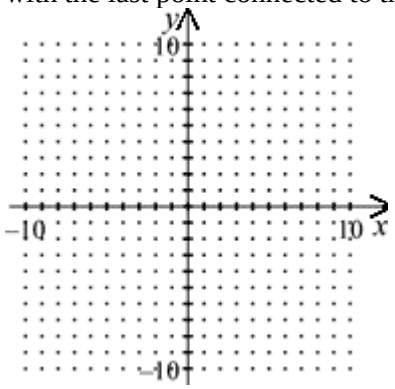
d. If a negative number is raised to an odd exponent, what's the sign of the answer? How do you know?

Plot the point and describe its location.

14 $E(4, 0)$



15 Plot the points $(3, 2)$, $(5, 2)$, $(3, -1)$, and $(3, -1)$ on a coordinate plane. If the points are connected in order, with the last point connected to the first, what figure will be formed? Explain.



16 The table shows the amount of time several students spent watching TV and their test grades.

Weekly TV (h)	6	12	18	24	30	36
Grade (%)	80	75	60	65	50	45

Graph the ordered pairs and make a statement about the trend that can be seen.

Simplify the expression.

17 $11 \cdot m \cdot 10$

Use the distributive property and mental math to find the product.

18 $4(51)$

19 You and six friends go to a movie. The tickets cost $7.50 each. You each buy a drink for $2.00 and a box of popcorn for $3.75. Write an expression that represents the total amount of money spent. Then evaluate the expression.

20 The students in Mrs. Krager's class are holding a car wash to raise money for their end-of-year field trip. They washed 45 cars by noon, and their goal is to wash 110 cars by the end of the day. Write and solve an addition equation to find c, the number of cars they still need to wash to meet their goal.

21 Janice and Thomas are roller blading around Sampson Pond. It takes them 4 minutes to complete a lap. Write and solve an equation to find how many laps they can complete in one hour if they continue roller blading at this pace.

Solve the equation. Check your solution.

22 $164 = x - 59$

23 A moving van weighing 13,500 pounds was loaded with furniture. The van stopped at a weigh station and the combined weight of the van and furniture was 14,955 pounds. How much did the furniture weigh?

24 **SHORT RESPONSE Write your answer on a separate piece of paper.**

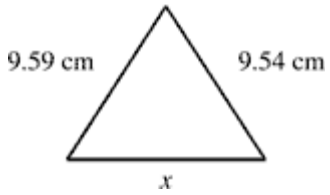
Consider the equation $x-15 = 40$.
a. Describe how to solve the equation. What is the solution?
b. Does $x + (-15) = 40$ have the same solution? How do you know?

Solve the equation.

25 $4x = 24$

26 The art teacher bought some boxes of colored pencils with 7 pencils in each box. She bought a total of 28 pencils. Write an equation that you could use to find how many boxes the art teacher bought.

27 The perimeter of the figure is 28.01 centimeters. Find the value of x.



Solve the equation. Check your solution.

28 $-\frac{q}{4} + 3 = 18$

29 $\frac{t}{14} + 9 = 13$

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

30 Seventy minus the product of 8 and a number is 86.

Write the prime factorization of the number.

31 126

Find the greatest common factor of the numbers.

32 46, 115, 184

Decide whether the numbers are relatively prime. If not, find the greatest common factor.

33 19, 299

34 Consider the monomials $15x^2y^2$ and $6x^3y$.
a. Factor the monomials.
b. What factors of these monomials are common factors?
c. Find the greatest common factor of $15x^2y^2$ and $6x^3y$.

35 Write three fractions equivalent to $\frac{4}{18}$.

Write the fractions in simplest form. Tell whether they are equivalent.

36 $\frac{3ab^2}{4ab}, \frac{3a^2b}{4a}$

Write the decimal as a fraction or mixed number.

37 9.31

38 A mechanic's ruler uses decimal parts of an inch instead of fractions. The ruler reads decimals to the ten-thousandths place. What decimal would the mechanic look for on the ruler to see if a part was $\frac{3}{8}$ inch in diameter?

Use a number line to order the numbers from least to greatest.

39 $\sqrt{38}, 6, \frac{32}{5}, 6.1$

40 Explain how you know that $3\frac{5}{9}$ is a rational number.

Find the sum or difference.

41 $-\frac{5}{11} + \frac{4}{11}$

Solve the equation.

42 $2\frac{11}{15} + x = 5\frac{4}{15}$

43 One morning TeeDee's Pie House sold $\frac{2}{10}$ of a shoo-fly pie, $2\frac{4}{10}$ blackberry pies, and $2\frac{5}{10}$ banana cream pies. How many pies were sold that morning?

Find the sum or difference.

44 $8\frac{1}{3} + 7\frac{3}{10}$

Evaluate the expression.

45 $-5\frac{2}{3} + \frac{1}{9} - \frac{15}{18}$

46 The first flowerbed that Marita made used $1\frac{1}{2}$ bags of barkdust. The flowerbed she is now making is $2\frac{1}{5}$ times as large as the first. How much barkdust will be used for this flowerbed?

Find the quotient.

47 $\frac{2}{5} \div \left(-\frac{3}{5}\right)$

48 $2\frac{1}{2} \div 3$

Evaluate the expression.

49 $-\frac{4}{5} \div \left(\frac{2}{3} + \frac{1}{4}\right)$

50 A farmer has $151\ \frac{1}{6}$ feet of chicken wire. She wants to build a 4-sided chicken pen so that each side is the same length. What will be the length of each side of the pen?