

Algebra 1: Unit 1 Problem Set

Mr. Chamberlain

Name _____

Date _____ Period _____

NO CALCULATOR; Reduce fractions to lowest terms; SHOW STEPS where appropriate.

1. a) Write an algebraic expression to represent the SUM of x and 17. 1a. _____
b) “ “ “ “ “ “ PRODUCT of x and 17. 1b. _____
c) “ “ “ “ “ “ QUOTIENT of x and 17. 1c. _____
2. Write an algebraic expression to represent the integer 15 *decreased by* the square of a number, g . 2. _____
3. Evaluate: a) 6^2 3a. _____
b) -6^2 3b. _____
c) $(-6)^2$ 3c. _____
4. Evaluate: $(12-3) \div 9 \cdot 15$ 4. _____
5. Evaluate: $a^3 - b^2 \div c + 7$ when $a = 3$, $b = 4$, and $c = 8$ 5. _____
6. Evaluate: $6[3^2 - 2(1+2)] \div 3 + 3^2$ 6. _____
7. What is the name of your new FAVORITE WEBSITE?
7. _____
8. What is the multiplicative inverse (aka the reciprocal) of $\frac{5}{6}$? 8. _____

N.B. When you multiply a number by its reciprocal, the product = 1.

FYI

A **replacement set** is a list of values that are potential solutions for a given equation or inequality. A **solution set** is a list of values that satisfies an equation or inequality.

For #9 & 10, the replacement set for x is $\{-4,-2,0,2,4\}$. What is the solution set ?

For example, if the values 0 & 2 are solutions, write the solution set as $\{0,2\}$

9. $x^2 = 16$ 9. _____

10. $x + 7 > 5$ 10. _____

Multiple Choice (fill in the letter of the answer choice at right)

11. The following table illustrates the price of a rental car based on miles driven. Based on the table below, about what would be the price for 429 miles driven?

# of Miles	Price
100	\$60.00
150	\$70.00
200	\$80.00
250	\$90.00

- a) \$85 b) \$105
c) \$125 d) \$135

11. _____

12. Choose an incorrect answer choice from the previous question that, in your opinion, is the worst answer choice. Explain why this is the worst answer choice in your own words below. (Write the letter of the **wrong** answer choice here) --> 12. _____

13. Which statement illustrates the multiplicative property of zero? 13. _____
- a) $4a \cdot 1 = 4a$ b) $4a \cdot 0 = 0$
c) $4a \div 1 = 4a$ d) $4a + 0 = 4a$

14. Evaluate the expression $r^2 + 2r + 7$ when $r = 5$.

14. _____

15. Evaluate the expression $r^2 + 2r + 7$ when $r = -5$.

15. _____

16. Which of the following mathematical sentences is true based on the suggested substitution?

16. _____

a) $\frac{1}{2}x + 5 = 11$ when $x = 6$

b) $3x + 5 < x^2$ when $x = 4$

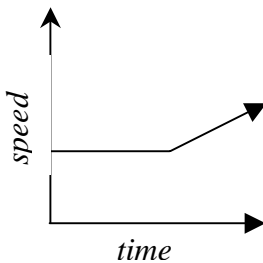
c) $\frac{x + 20}{2} = 14$ when $x = 4$

d) $\frac{5 + 20}{x} = x$ when $x = 5$

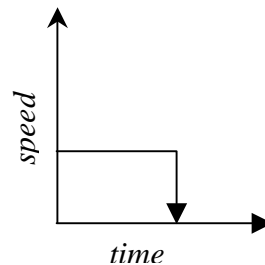
17. Which graph best represents the speed of a car traveling steadily along flat ground and then allowed to drift (no gas or brake pedal applied), continuing along on flat ground until it stops?

17. _____

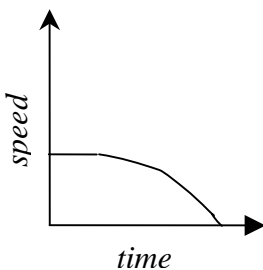
a)



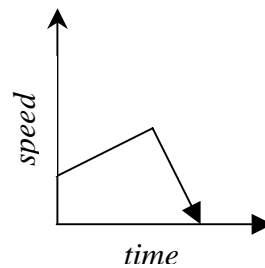
b)



c)



d)



Open-Ended Response

18. Insert grouping symbols into the numerical expression $13 + 7 \cdot 4 \div 2$ so that its value is 40.

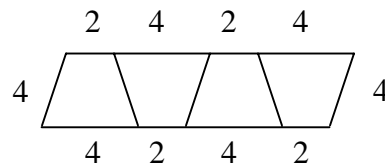
Answer:

19. Insert grouping symbols into the algebraic expression $2x + 2 \cdot 4 - 3$ so that its value is 12 when $x = 5$.

Answer:

20. Continue the pattern of adjacent similar trapezoids. What is the perimeter of a figure consisting of 6 trapezoids?

20. _____



21. Consider the previous problem. Can you find/develop a formula to find the perimeter of a figure containing n trapezoids?

21. _____

22. Evaluate: a) $\frac{5}{0}$

22a. _____

b) $\frac{0}{7}$

22b. _____

c) $-|-9|$

22c. _____

d) $-|-13 - (-8)|$

22d. _____