

Student: _____
Date: _____
Time: _____

Instructor: Randie Johnson
Course: Algebra 1
Book: *Algebra 1 Common Core (2015)

Assignment: Algebra 1 Summer Practice

1. Write an algebraic expression for the following word phrase.

The quotient of 64 and x

The algebraic expression for "the quotient of 64 and x " is .

2. Express the following English phrase using an algebraic expression.

The product of 10 and a number z .

Represent "The product of 10 and a number z " mathematically.

3. Write an algebraic expression for the following word phrase.

10.54 less than the product of 26 and x

The word phrase written as an algebraic expression is .

4. Write an English phrase that would translate into the following mathematical expression.

$$6(z - 5)$$

Which of the following is equivalent to the expression $6(z - 5)$?

- A. 5 less than the product of 6 and a number z
 B. 6 times the difference of a number z and 5
 C. 6 less than the product of 5 and a number z
 D. The quotient of 6 times a number z and 5

5. A bagel shop sells bagels by the pair. The table at the right shows the number of bagels a shop gives per "pair" ordered. Write an algebraic expression that gives the rule for finding the number of bagels in any number b of pairs.

Bagels	
Pairs	Number of Bagels
7	14
8	16
9	18
b	_____

Number of bagels is .

(Type an expression using b as the variable.)

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6. Evaluate.

$$\left(\frac{6}{7}\right)^2$$

$$\left(\frac{6}{7}\right)^2 = \square$$

7. Evaluate the following exponential expression.

$$\left(\frac{3}{5}\right)^3$$

$$\left(\frac{3}{5}\right)^3 = \square \text{ (Type an integer or a simplified fraction.)}$$

8. Simplify the following expression.

$$3[(9 - 5)^4 \div 8]$$

$$3[(9 - 5)^4 \div 8] = \square \text{ (Simplify your answer.)}$$

9. Evaluate the following for $x = 1$ and $y = 4$.

$$y^3 - 3x$$

The answer is \square .

10. Evaluate the expression for $x = 2$ and $y = 5$.

$$\frac{2y - 4}{x}$$

$$\frac{2y - 4}{x} = \square$$

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11. The snack bar at your school has added sushi to its menu. The ingredients for one roll include sushi rice, seaweed sheets, cucumbers, cream cheese, and 4 oz of smoked salmon. One roll can be cut into 7 servings. Write an expression for the amount of salmon needed to make s servings of sushi. How much salmon is needed to make 14 servings? 21 servings? 70 servings? 100 servings?
- What operations are needed in your calculations?
 - Use a table to help you organize your results. What will you use for the column headings in your table?

Write an expression for the amount of salmon needed to make s servings of sushi. Choose the correct answer below.

A. $\frac{7s}{4}$

B. $\frac{4s}{7}$

C. $\frac{7}{4s}$

D. $\frac{4}{7s}$

s servings	amount of salmon
14	<input type="text"/> oz
21	<input type="text"/> oz
70	<input type="text"/> oz
100	<input type="text"/> oz

(Round to the nearest whole number as needed.)

12. Choose which group of sets the following number belongs to. Be sure to account for ALL sets.

$$-\frac{9}{10}$$

- A. real numbers, rational numbers
- B. real numbers, irrational numbers
- C. real numbers, rational numbers, natural numbers
- D. rational numbers, natural numbers, integers
- E. irrational numbers, natural numbers

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13. Name the subset(s) of the real numbers to which the number -7 belongs.

Choose the correct answer below.

- A. whole numbers, integers, irrational numbers, natural numbers
- B. integers, natural numbers
- C. integers, rational numbers
- D. whole numbers, integers, rational numbers, natural numbers

14. Evaluate the square root.

$$\sqrt{\frac{49}{100}}$$

$$\sqrt{\frac{49}{100}} = \square \text{ (Type an integer or a fraction.)}$$

15. Estimate the square root. Round to the nearest integer.

$$\sqrt{93}$$

$$\sqrt{93} \approx \square \text{ (Round to the nearest integer as needed.)}$$

16. Order the numbers below from least to greatest.

$$\frac{1}{2}, -3, \sqrt{6}, -\frac{5}{4}, 1.6$$

Choose the correct answer below.

- A. $\frac{1}{2}, -\frac{5}{4}, \sqrt{6}, 1.6, -3$
- B. $-\frac{5}{4}, -3, \frac{1}{2}, \sqrt{6}, 1.6$
- C. $-3, -\frac{5}{4}, \frac{1}{2}, 1.6, \sqrt{6}$
- D. $-3, -\frac{5}{4}, \frac{1}{2}, \sqrt{6}, 1.6$

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17. Find the approximate side length of a square game board with an area of 167 in^2 .

in

(Round to the nearest inch as needed.)

18. Name the property that the following statement illustrates.

$$91 + 4 = 4 + 91$$

Choose the correct property below.

- A. Commutative property of addition
- B. Associative property of addition
- C. Identity property of multiplication
- D. Commutative property of multiplication
- E. Identity property of addition
- F. Associative property of multiplication

19. Use the commutative and associative properties as needed to simplify the expression.

$$(14 + a) + 12$$

$$(14 + a) + 12 = \boxed{} \text{ (Simplify your answer.)}$$

20. Tell whether the expressions in the following pair are equivalent.

$$15x \cdot 0 \text{ and } 1$$

Are the expressions equivalent?

- No
- Yes

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21. The sign at the right shows the costs for a deep-sea fishing trip. How much will the total cost be for 1 adult, 2 children, and 1 senior citizen to go on a fishing trip? Use mental math.

DEEP-SEA FISHING	
Adults.....	\$41
Children (12 & under).....	\$25
Seniors (65 & up).....	\$39

The total cost will be \$.

22. Add using a number line.

$$-5 + 9$$

Graph the value of the sum on the number line below. 0



23. Add.

$$-9 + (-8)$$

$$-9 + (-8) = \square$$

24. Add.

$$-2 + (-4)$$

$$-2 + (-4) = \square$$

25. Find the sum without the use of a number line.

$$\frac{9}{38} + \left(-\frac{3}{19}\right)$$

$$\frac{9}{38} + \left(-\frac{3}{19}\right) = \square$$

26. Subtract.

$$5 - (-7)$$

$$5 - (-7) = \square$$

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27. Subtract.

$$-2 - (-3)$$

$$-2 - (-3) = \square$$

28. Evaluate the expression below for $a = -9$, $b = -4.8$, and $c = 7$.

$$-c + b - a$$

$$-c + b - a = \square \text{ (Simplify your answer.)}$$

29. A commercial jet liner hits an air pocket and drops 277 feet. After climbing 172 feet, it drops another 196 feet. What is its overall vertical change?

The jet's overall vertical change is \square feet.

30. Multiply.

$$(8)(-3)$$

$$(8)(-3) = \square$$

31. Find the product.

$$-\frac{4}{7} \cdot \frac{2}{3}$$

$$-\frac{4}{7} \cdot \frac{2}{3} = \square \text{ (Type an integer or a simplified fraction.)}$$

32. Simplify.

$$-\sqrt{16}$$

The answer is \square .

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33. Evaluate the square root.

$$-\sqrt{\frac{9}{49}}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

A. $-\sqrt{\frac{9}{49}} = \blacksquare$ (Type an integer or a simplified fraction.)

B. The square root is not a real number.

34. Find the quotient.

$$-24 \div (-6)$$

$$-24 \div (-6) = \square$$

35. Find the quotient.

$$10 \div \frac{1}{5}$$

$$10 \div \frac{1}{5} = \square \text{ (Simplify your answer.)}$$

36. A parachutist's elevation changes by -130 ft in 13 seconds. What is the change in the parachutist's elevation each second?

Her elevation changes \square feet each second.

37. Use the distributive property to write the expression without parentheses.

$$-(3x + 2)$$

$$-(3x + 2) = \square \text{ (Simplify your answer.)}$$

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38. Write the fraction below as a sum or difference.

$$\frac{7 - 9x}{3}$$

$$\frac{7 - 9x}{3} = \square$$

(Simplify your answer. Use integers or fractions for any numbers in the expression.)

39. Simplify the algebraic expression by combining like terms.

$$-8x^2 + 18x^2$$

$$-8x^2 + 18x^2 = \square \text{ (Simplify your answer.)}$$

40. Simplify the expression.

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

$$9(3 + t) - 7(t + 1) = \square$$

41. You buy 40 of your favorite songs from a Web site that charges \$0.97 for each song. What is the cost of 40 songs? Use mental math.

The total cost of 40 songs is \$ \square .

(Simplify your answer.)

42. Tell whether the equation is true, false, or open.

$$1 + 6 = 7$$

Choose the correct answer below.

- True
 False
 Open

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43. Determine if the given value is a solution to the equation.

$$-6b + 1 = 2; \frac{1}{2}$$

Is $b = \frac{1}{2}$ a solution of the equation $-6b + 1 = 2$?

- No
 Yes

44. Use a table to find the solution of the equation.

$$6x + 11 = 35$$

x =

45. Use a table to find the solution of the equation. If the solution lies between two consecutive integers, identify those integers.

$$32.8 = 5n - 3$$

If the solution is an integer, type this integer. Otherwise, type the two consecutive integers between which the solution lies.

(Use a comma to separate answers as needed.)

46. An athlete trains for 95 min each day for as many days as possible. Write an equation that relates the number of days d that the athlete spends training when the athlete trains for 380 min.

Enter an equation where any numbers represent numbers of minutes.

(Type an equation using d as the variable. Do not simplify. Do not evaluate.)

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47. Tell whether the equation has the ordered pair as a solution.

$$y = 7x; (1,7)$$

Is (1,7) a solution of the given equation?

- No
 Yes

48. Decide whether the ordered pair (1,9) is a solution of the equation.

$$y = 9x$$

Is (1,9) a solution to $y = 9x$?

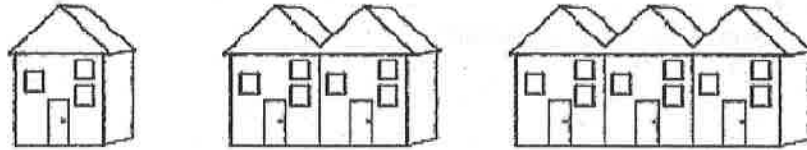
- No
 Yes

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49. Make a table and draw a graph to show the relationship between the number of houses and the number of windows. What is the number of windows in 6 houses?

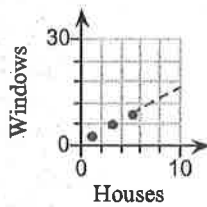


Complete the table below.

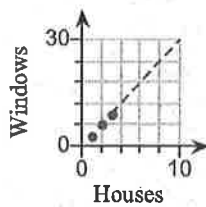
Number of Houses	Number of Windows
1	<input type="text"/>
2	<input type="text"/>
3	<input type="text"/>

Choose the correct graph below.

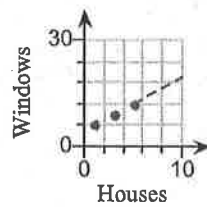
A.



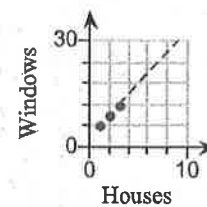
B.



C.



D.



There are windows in 6 houses.

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50. Use a table, an equation, and a graph to represent the relationship below.

Ty is 4 years younger than Bea.

Complete the table below.

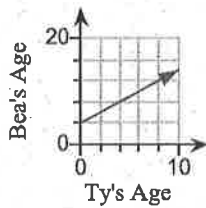
Ty's and Bea's Ages (years)					
Ty's Age	1	2	3	4	5
Bea's Age	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Let x represent Ty's age and y represent Bea's age. Choose the correct equation below.

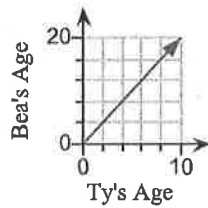
- A. $y = x - 4$
- B. $y = x + 4$
- C. $x + y = 4$
- D. $y = 4x$

Choose the correct graph below.

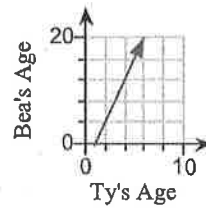
A.



B.



C.



D.

