

Algebra 2 Summer Assignment

Name: _____

Date: _____

Part I. Choose the best answer to the following questions. Each is worth two points. No partial credit will be given.

1. Which equation illustrates the multiplicative inverse property?

- A. $a \cdot 1 = a$ B. $a \cdot 0 = 0$ C. $a \left(\frac{1}{a} \right) = 1$ D. $(-a)(-a) = a^2$

2. The statement “ x is divisible by 3 and x is greater than 3” is true for which whole number?

- A. 5 B. 6 C. 3 D. 4

3. Which statement is always true if the domain of the variables is the set of positive integers?

- A. $\sqrt{a^2 + b^2} = a + b$ B. $ab = b$
C. $\frac{a+b}{c} = \frac{a}{c} + \frac{b}{c}$ D. $(a+b)^2 = a^2 + b^2$

4. The statement “ n is even and a perfect square” is true when n equals

- A. 1 B. 18 C. 25 D. 4

5. If a and b are any two whole numbers, which statement is always true?

- A. $2a + b = 2b + a$ B. $a + b = b + a$ C. $a^b = b^a$ D. $a \div b = b \div a$

6. The sentence $3 + (5 + 2) = (5 + 2) + 3$ illustrates

- A. the commutative property of addition
B. the associative property of addition
C. the distributive property of multiplication over addition
D. the additive identity element

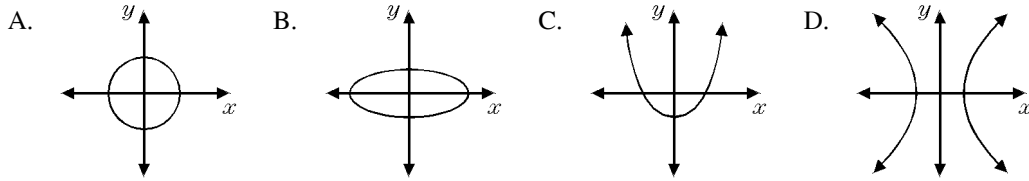
7. Which number property is illustrated by the equation $\frac{35}{4} + 0 = \frac{35}{4}$?
- A. associative property for addition B. commutative property for addition
C. identity property for addition D. inverse property for addition
8. When solving for the value of x in the equation $4(x - 1) + 3 = 18$, Aaron wrote the following lines on the board.

[line 1] $4(x - 1) + 3 = 18$
[line 2] $4(x - 1) = 15$
[line 3] $4x - 1 = 15$
[line 4] $4x = 16$
[line 5] $x = 4$

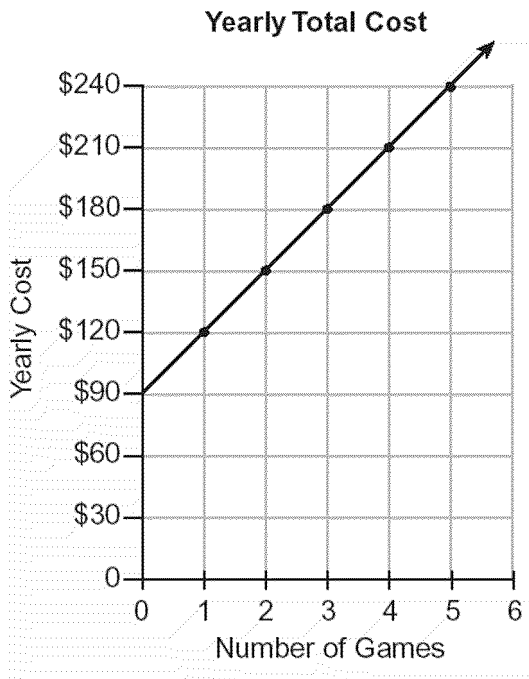
Which property was used *incorrectly* when going from line 2 to line 3?

- A. distributive B. commutative
C. associative D. multiplicative inverse
9. Given the relation $\{(8, 2), (3, 6), (7, 5), (k, 4)\}$, which value of k will result in the relation *not* being a function?
- A. 1 B. 2 C. 3 D. 4

10. Which graph illustrates a quadratic relation whose domain is all real numbers?



11. The accompanying graph represents the yearly cost of playing 0 to 5 games of golf at the Shadybrook Golf Course. What is the total cost of joining the club and playing 10 games during the year?



12. Which equation could represent the relationship between the x and y values shown in the accompanying table?

x	y
0	2
1	3
2	6
3	11
4	18

- A. $y = x + 2$ B. $y = x^2 + 2$ C. $y = x^2$ D. $y = 2x$

13. What is the solution for the following system of equations?

$$\begin{aligned} 2x + y &= 7 \\ x - 2y &= 6 \end{aligned}$$

- A. (3, 1) B. (1, 3) C. (-1, 4) D. (4, -1)

14. Which is a solution for the following system of equations?

$$\begin{aligned} y &= x^2 \\ y &= -2x + 15 \end{aligned}$$

- A. (-3, 9) B. (5, 25) C. (3, 9) D. (-5, 3)

15. In how many points do the graphs of these functions intersect?

$$y = x^2 - 2x$$

$$y = x$$

- A. 1 B. 2 C. 3 D. 0

Part II. Answer each of the following questions using your knowledge of mathematics. Partial credit may be given for appropriate work shown.

16. Write the 3 most common methods of factoring binomials and trinomials. (3 points)

17. The product of two factors is $x^2 - x - 20$. If one of the factors is $x - 5$, what is the other factor? (2 points.)

18. Factor: $9x^2 - 1$. (2 points)

19. If $f(x) = -2x^2 + 6$, find the value of $f(-3)$. (2 points)

20. If the domain of $f(x) = x^2 + 1$ is limited to $\{0, 1, 2, 3\}$, what is the maximum value of the range? (3 points)