1. Select the answer that best completes the given statement.

   $a(b + c) = ab + ac$ illustrates the (1) _____ property.

   (1) ○ commutative
   ○ associative
   ○ distributive

2. Watch the section lecture video and answer the question listed below. Note: The counter in the lower right corner of the screen displays the Example number.

   From Examples 12-14, how are algebraic expressions simplified? If the expression contains parentheses, what property might be applied first?

   From Examples 12-14, how are algebraic expressions simplified?

   ○ A. They are simplified by combining like terms.
   ○ B. Algebraic expressions in those examples cannot be simplified.
   ○ C. They are simplified by substitution.
   ○ D. They are simplified by solving.

   If the expression contains parentheses, what property might be applied first?

   ○ identity property
   ○ commutative property
   ○ associative property
   ○ distributive property

3. Select the correct choice that completes the sentence below.

   The (1) _____ of an expression are the addends of the expression.

   (1)   ○ degree
          ○ terms
   ○ grouping symbols

4. In the statement, a property of real numbers has been incorrectly applied. Correct the right side of the statement.

   $6(x + 3) = 6x + 3$

   The correct statement is $6(x + 3) =$ _____ .

5. Fill in the chart.

Number	Opposite	Reciprocal
5	?	?

Number	Opposite	Reciprocal
5	(1) ———————	(2) ———————

(1) ○ − 5   ○ 0   (2) ○ − 5   ○ $-\dfrac{1}{5}$

     ○ $\dfrac{1}{5}$ ○ 0

     ○ $-\dfrac{1}{5}$ ○ $\dfrac{1}{5}$

     ○ undefined   ○ undefined

6. Fill in the chart.

Number	Opposite	Reciprocal
?	6	?

Number	Opposite	Reciprocal
(1) ———————	6	(2) ———————

(1) ○ $-\dfrac{1}{6}$ ○ $\dfrac{1}{6}$ (2) ○ − 6   ○ Undefined

     ○ 6   ○ 6

     ○ Undefined   ○ $-\dfrac{1}{6}$

     ○ − 6   ○ $\dfrac{1}{6}$

7. Use the commutative property of addition to write an expression equivalent to the following.

    10a + b

The answer is ——————— .

8. Use the distributive property to find the product of the following.

    8(x + 1)

8(x + 1) = ——————— (Simplify your answer.)

9. Use the distributive property to find the product of the following.

    − (3x + y)

The answer is ——————— .

10. Use the distributive property to multiply.

    3(4x + 5y + 3z)

3(4x + 5y + 3z) = ———————

11. Use the distributive property to find the product.

$$-6(x - 2y + 9)$$

$-6(x - 2y + 9) =$ _____
(Simplify your answer.)

12. Simplify.

$$-6 + 7x + 14 - 12x$$

$-6 + 7x + 14 - 12x =$ _____

13. Simplify the following expression.

$$7y - 6 + 19y - 17y$$

$7y - 6 + 19y - 17y =$ _____

14. Simplify.

$$8k - (4k - 18)$$

$8k - (4k - 18) =$ _____

15. Simplify the expression.

$$-9c - (4 - 2c)$$

$-9c - (4 - 2c) =$ _____

16. Simplify the following expression.

$$(12 - 11y) - (12 + 17y)$$

$(12 - 11y) - (12 + 17y) =$ _____

17. Simplify.

$$4(xy - 3) + xy + 18 - x^2$$

$4(xy - 3) + xy + 18 - x^2 =$ _____

18. Simplify.

$$-(n + 1) + (2n - 2)$$

$-(n + 1) + (2n - 2) =$ _____

19. Simplify the expression.

$$9(10n^2 - 2) - 5(18n^2 + 6)$$

$9(10n^2 - 2) - 5(18n^2 + 6) =$ _____
(Use integers or fractions for any numbers in the expression.)

20. Simplify.

$$\frac{7}{9}b - \frac{1}{5} + \frac{8}{15}b - \frac{1}{3}$$

$\frac{7}{9}b - \frac{1}{5} + \frac{8}{15}b - \frac{1}{3} =$ _____

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

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21. Simplify the following expression.

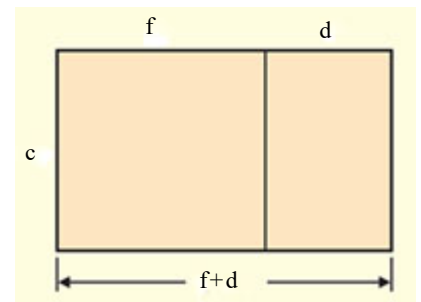$$\frac{1}{3}(27x - 18) - \frac{1}{4}(20x - 3y)$$

$\frac{1}{3}(27x - 18) - \frac{1}{4}(20x - 3y) =$ _____

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

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22. To demonstrate the distributive property geometrically, represent the area of the larger rectangle in two ways, first as width times length and second as the sum of the areas of the smaller rectangles.

The area of the larger rectangle obtained by multiplying width times length is _____ .
(Do not simplify.)

The area of the larger rectangle obtained by finding the sum of the areas of the two smaller rectangles is

_____ . (Simplify your answer.)

1. (1) distributive

2. A. They are simplified by combining like terms.

 distributive property

3. (1) terms

4. 6x + 18

5. (1) − 5

 (2) $\dfrac{1}{5}$

6. (1) − 6

 (2) $-\dfrac{1}{6}$

7. b + 10a

8. 8x + 8

9. − 3x − y

10. 12x + 15y + 9z

11. − 6x + 12y − 54

12. − 5x + 8

13. 9y − 6

14. 4k + 18

15. − 7c − 4

16. − 28y

17. $-x^2 + 5xy + 6$

---

18. $n - 3$

---

19. -48

---

20. $\dfrac{59}{45}b - \dfrac{8}{15}$

---

21. $4x + \dfrac{3}{4}y - 6$

---

22. $c(f + d)$

$cf + cd$