**Distributive Property and Combining Like Terms** Date:

**Distributive Property**

**KEY VOCABULARY**

 are expressions that will yield the same answer when you plug the same value in for the

variables.

**Ex.** 3(x + 2) = 3x + 3(2) = 3x + 6

The **distributive property** is used to find the of a number and a or .

**The Distributive Property**

**Algebra**

a(b + c) = ab + ac

**Examples**

3(4 + 2) = 3( ) + 3( )

(b + c)a = ba + ca

(3 + 5)2 = (2) + (2)

a(b – c) = ab – ac

5(6 – 4) = ( ) - ( )

(b – c)a = ba – ca

(8 – 6)4 = ( ) - ( )

# Examples

1. 3(x + 2) = 2. 2(r – 4) = 3. (n + 6)n

3( ) + 3( ) 2( ) – 2( ) ( ) + ( )

# Your Turn

|  |  |  |
| --- | --- | --- |
| 1. 2(x + 3) | 2. (2 – n)8 | 3. 4(y + 2) |
| 4. 6(4 – x) | 5. n(n – 9) | 6. 3m(m – 5) |

**\*\*DISTRIBUTING A NEGATIVE** can be TRICKY! Follow the same steps shown earlier; just **BE CAREFUL WITH YOUR NEGATIVES!**

# Examples

4. -2(x + 7) =

= ( )(x) + ( )(7) Distribute .

= +

=

Simplify.

Rewrite “add the opposite” as .

5. (5 - y)(-3y) =

= ( )(-3y) - ( )(-3y) Distribute .

= -

Simplify.

= Rewrite “add the opposite” as .

6. -(2x - 11) =

= ( )(2x) - ( )(11) Distribute .

= -

Simplify.

Rewrite “add the opposite” as .



= Rewrite “add the opposite” as .

# Your Turn

|  |  |  |
| --- | --- | --- |
| 7. -5(n + 4) | 8. –(4 – y) | 9. (m – 5)(-3m) |
| 10. –a(3 + a) | 11. –(2x – 11) | 312.  ( *p* 1)4 |

Distribute and solve for x.

Example: - 6(3n – 3) = -90 ⎕Distribute \_-6\_\_\_ to each term in the parenthesis

 -18n + 18 = -90 $⎕$ If the constant is positive, subtract \_18\_\_\_ from both sides

 If the constant is negative, add \_\_\_\_ to both sides

 -18n = -72 $ ⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_-18\_\_\_\_

 N = 4

**1. 6(y + 7) = 66**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_=66 $ ⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= 66

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**2. -3(4y + 9) = 15**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_=15 $⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= 15

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**3. 5(1 – 2x) = -65**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_= -65 $ ⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= -65

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**4. -4(2y -5) = 68**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_=68 $⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= 68

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**5. 6(-6a - 5) = 78**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_=78 $ ⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= 78

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**6. 4(1 - 5x) = 124**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_=124 $⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= 124

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**7. -3(6 + 3x) = -72**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_= -72 $ ⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= -72

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**8. -5(y + 6m) = 75**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_=75 $⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= 75

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**9. -3(6 - 3n) = -63**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_=-63 $ ⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= -63

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**10. -5(-2 – 3k) = -65**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_= -65 $⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= -65

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**11. -6(n – 5) = 66**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_= 66 $ ⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= 66

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**12. 4(y - 3) = 20**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_= 20 $⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= 20

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**13. 6(y + 5) = 12**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_= 12 $ ⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= 12

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**14. 3(2y – 7 ) = 9**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_=9 $⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= 9

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**15. 6(x – 2) = -36**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_= -36 $ ⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= -36

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**16. -7(y + 8) = -14**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_= -14 $⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= -14

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**17. -(2y - 8) = -2**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_= -2 $ ⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= \_\_\_

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**18. 3(y + 9) = 15**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_=15 $⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= \_\_\_\_

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_

**19. 2(2x - 2) = 26**  ⎕Distribute \_\_\_ to each term in the parenthesis

 \_\_\_ \_\_\_= 26 $ ⎕$ If the constant is positive, subtract \_\_\_\_

 If the constant is negative, add \_\_\_\_ to both sides

 \_\_\_= \_\_\_

 $⎕$ Simplify (bring down the remaining terms)

 $⎕$ Divide both sides by\_\_\_\_\_\_

 \_\_\_=\_\_\_\_