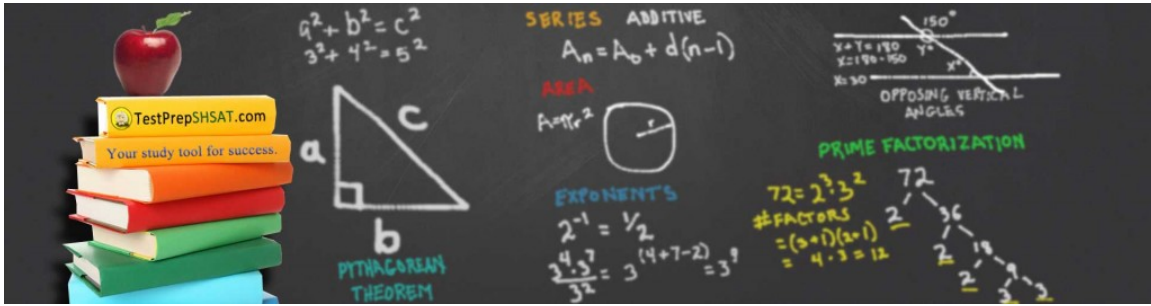


Name:

Date:



WORKSHEET :



Distributive Property - Simplify(factor)

Factor the following

1. $10 + 10 + 10 =$

$$\frac{5 + 5 + 5}{5} =$$

$$\frac{3 + 3 + 3}{9} =$$

2. $x + x + x =$

$$\frac{5x + 5x + 5x}{5} =$$

$$\frac{3y + 3y + 3y}{9} =$$

3. $(10 - 4) + (9 - 3) + (8 - 2)$
 $= 3 \times \underline{\quad}$

$$4 + 8 + 12 + 16 = 4$$

 $\times \underline{\quad}$

$$3 + 6 + 9 + 12 = 6 \times \underline{\quad}$$

4. $77 + 44 = 11 \times \underline{\quad}$

$$33 + 22 = 11 \times \underline{\quad}$$

$$2^2 + 2^2 + 2^2 = 2 \times \underline{\quad}$$

5. $\frac{55 + 44}{11} =$

$$\frac{22x + 44x}{11} =$$

$$x^3 + x^2 - 5x =$$

ANSWERS :



Distributive Property -
Simplify(factor)

Factor the following

1. $10 + 10 + 10 = 3(10) = 30$ $\frac{5 + 5 + 5}{5} = \frac{3(5)}{5} = 3$ $\frac{3 + 3 + 3}{9} = \frac{3(3)}{9} = 1$
2. $x + x + x = x(1 + 1 + 1) = 3x$ $\frac{5x + 5x + 5x}{5} = \frac{5x(3)}{5} = 3x$ $\frac{3y + 3y + 3y}{9} = \frac{3y(3)}{9} = y$
3. $(10 - 4) + (9 - 3) + (8 - 2) = 3 \times ?$
 $6 + 6 + 6 = 3 \times 6$ $4 + 8 + 12 + 16 = 4 \times ?$
 $4(1 + 2 + 3 + 4) = 4(10)$ $3 + 6 + 9 + 12 = 6 \times ?$
 $3(1 + 2 + 3 + 4) = 3(10) = 6(5)$
4. $77 + 44 = 11 \times ?$
 $= 11(7 + 4)$
 $= 11(11)$ $33 + 22 = 11 \times ?$
 $= 11(3 + 2)$
 $= 11(5)$ $2^2 + 2^2 + 2^2 = 2 \times ?$
 $= 3(2^2) = 3(2 \cdot 2)$
 $= 2(3 \cdot 2) = 2(6)$
5. $\frac{55 + 44}{11} = \frac{11(5 + 4)}{11} = 5 + 4 = 11$ $\frac{22x + 44x}{11} = \frac{11x(2 + 4)}{11} = x(2 + 4) = 6x$ $x^3 + x^2 - 5x = x(x^2 + x - 5)$

KEY CONCEPTS:

Understand the basic principles of mathematics that help us manipulate expressions into something more meaningful or easier to calculate. Learn how to use the ideas with some variable expressions and not just numerical values to highlight why these properties are important for algebra.

1. Distributive Property.

$$a(b + c) = ab + ac$$

2. Learn to expand expressions within parentheses/learn to pull out common factors

a. $4(x + 3) = 4x + 12$

b. $x^2 + x = x(x + 1)$ or $77 + 7 = 7(11 + 1) = 7(12)$

3. Use distributive property to do mental math

a. $6(107) = 6(100 + 7) = 600 + 42 = 642$

4. Avoid common distribution mistakes

a. $(x + y)^2 \neq x^2 + y^2$ instead $x^2 + 2xy + y^2$

b. $(3x^2) \neq 3x^2$ instead $(3x^2) = 9x^2$

c. $10 - (x - 4) \neq 10 - x - 4$ instead $10 - x + 4$

5. Distribute properly with binomials and polynomials

a. $(x + 3)(x - 5) = x^2 - 2x - 15$ (FOIL method)

b. $x(x^2 - 2x - 15) = x^3 - 2x^2 - 15x$