

Grade 6 - Equivalent Expressions and the Distributive Property - Worksheet

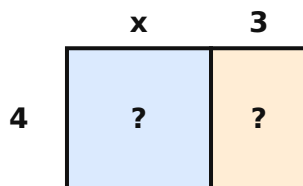
Common Core 6.EE.A.3, 6.EE.A.4 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

These 20 problems practice equivalent expressions (Common Core 6.EE.A.3 and 6.EE.A.4). You will use the distributive property, factor out common factors, combine like terms, test equivalence with numbers, and use area models to write expressions for real situations.

Grade 6 · Common Core State Standards: **6.EE.A.3, 6.EE.A.4**

Exercise 1 - Distribute over a sum



A rectangle of height 4 split into widths x and 3.

Use the distributive property to write $4(x+3)$ without parentheses.

Exercise 2 - Distribute with a coefficient

Write $5(2y+7)$ without parentheses.

Exercise 3 - Distribute over a difference

Write $3(a-4)$ without parentheses.

Exercise 4 - Distribute a variable sum

Write $6(m+n)$ without parentheses.

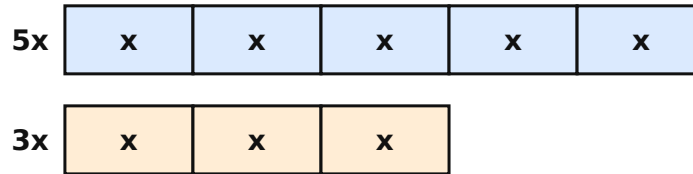
Exercise 5 - Factor out the GCF

Write $8x+12$ as a product of the GCF and a sum.

Exercise 6 - Factor a sum

Write $15+20y$ as a product of the GCF and a sum.

Exercise 7 - Combine like terms



Five x and three x.

Simplify $5x+3x$.

Exercise 8 - Combine several terms

Simplify $7a+2+3a+9$.

Exercise 9 - Subtract like terms

Simplify $9y-4y+6$.

Exercise 10 - Two variables

Simplify $2x+3y+4x-y$.

Exercise 11 - Which are equivalent?

Label	Expression
A	$3(x + 2)$
B	$3x + 2$
C	$3x + 6$
D	$x + x + x + 6$

Four expressions.

Which of the expressions are equivalent to $3(x + 2)$? Explain.

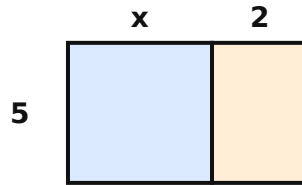
Exercise 12 - Test with a number

Are $2(x+5)$ and $2x+5$ equivalent? Test with $x = 4$.

Exercise 13 - Add versus multiply

Show that $y+y+y$ is equivalent to $3y$, but $y \cdot y$ is not equivalent to $3y$. Use $y=5$.

Exercise 14 - Area of a rectangle



A rectangle with height 5 and width $x + 2$.

A rectangle has height 5 and width $x + 2$. Write two equivalent expressions for its area.

Exercise 15 - Distribute then combine

Simplify $2(3x+4)+5x$.

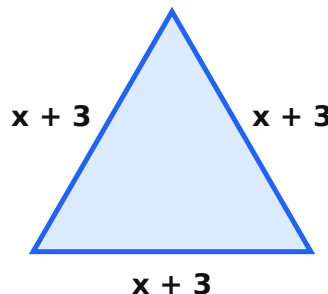
Exercise 16 - Distribute a fraction

Write $\frac{1}{2}(8x+6)$ without parentheses.

Exercise 17 - Tickets and fees

At a concert, each ticket costs \$6 and has a \$2 service fee. Write two equivalent expressions for the cost of t tickets, then find the cost of 5 tickets.

Exercise 18 - Perimeter of a triangle



A triangle with three equal sides.

A triangle has three equal sides, each $x + 3$ inches long. Write the perimeter in two equivalent ways.

Exercise 19 - Simplify with a difference

Simplify $10x - 3x + 2(x + 4)$.

Exercise 20 - Multi-step expression

Simplify $3(2x + 5) - 4x + 1$. Check your answer with $x = 2$.