

## Removing Brackets (Simplifying Expressions)

### A. Fill in the Blanks

1.  $4(x + \underline{\hspace{1cm}}) = 4x + 28$

2.  $-5(y - 3) = \underline{\hspace{1cm}}y + 15$

3.  $\underline{\hspace{1cm}}(2a + 5) = 6a + 15$

4.  $-(6b - 2) = -6b + \underline{\hspace{1cm}}$

5.  $7(m + 2) - \underline{\hspace{1cm}}(m - 1) = 4m + 17$

### B. Match the expression in Column A with its simplified form in Column B.

Column A	Column B
1. $3(x + 2)$	A. $3x - 1$
2. $4(x - 1) - x$	B. $x + 8$
3. $-(x - 8)$	C. $3x + 6$
4. $5(x + 1) - 4(x - 1)$	D. $-x + 8$
5. $2(x + 4) - x$	E. $x + 9$
6. $x - (1 - 2x)$	F. $3x - 4$

### C. Remove the brackets and simplify the expression by collecting like terms.

1.  $2(x + 3) + 4x$

2.  $5(y - 1) + 6$

3.  $3(a + 4) + 2(a + 1)$

4.  $6(b - 2) - 2b$

5.  $4(c + 5) - (c + 10)$

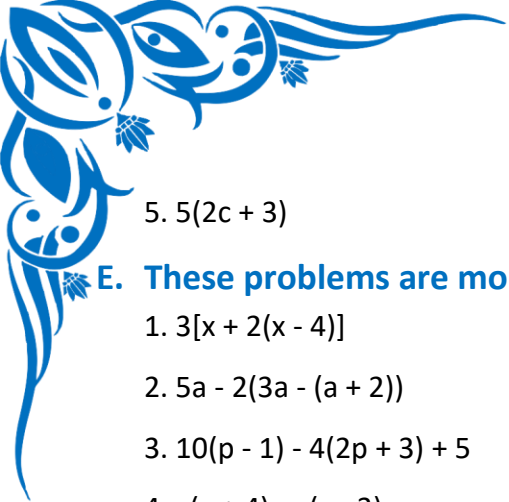
### D. Expand the following expressions by removing the brackets. You do not need to simplify further.

1.  $3(x + 5)$

2.  $4(y - 2)$

3.  $-2(a + 6)$

4.  $-(b - 7)$



5.  $5(2c + 3)$

**E. These problems are more complex. Take your time, show your steps, and simplify fully.**

1.  $3[x + 2(x - 4)]$

2.  $5a - 2(3a - (a + 2))$

3.  $10(p - 1) - 4(2p + 3) + 5$

4.  $x(y + 4) - y(x - 3)$

5.  $\frac{1}{2}(6x + 10) - \frac{1}{3}(9x - 6)$

**F. Write an expression with brackets for each problem and then simplify it.**

1. A rectangle has a width of  $w$  cm. Its length is 5 cm more than its width. Write and simplify an expression for the perimeter of the rectangle. (Perimeter =  $2(\text{length} + \text{width})$ )
2. You buy  $n$  notebooks that cost 3 each and  $n$  pens that cost 2 each. Your friend buys  $n$  notebooks but gets a \$1 discount on each one. Write and simplify an expression for the total cost for both you and your friend.
3. A triangle has side lengths of  $(2x + 1)$ ,  $(3x - 5)$ , and  $(x + 10)$ . Write and simplify an expression for its perimeter.
4. Sarah has \$  $(10y + 25)$  in her bank account. She withdraws \$  $(4y - 5)$  to buy a gift. Write and simplify an expression for the amount of money left in her account.
5. Find the area of the shaded region in the figure below. The large rectangle has a length of 10 and a width of  $(x + 3)$ . The small, unshaded rectangle inside has a length of 4 and a width of  $x$ . (Hint: Area = Large Area - Small Area)

**G. True or False**

1.  $5(x + 3) = 5x + 3$

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2.  $-(y - 4) = -y - 4$

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3.  $2(a + 1) + 3(a - 2) = 5a - 4$

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4.  $8 - (b + 2) = 6 - b$

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5.  $4(2x - 1) = 8x - 4$

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