Removing Brackets (Simplifying Expressions)

A. Fill in the Blanks

1. 4(x + ____) = 4x + 28
2. -5(y - 3) = ____y + 15
3. ____(2a + 5) = 6a + 15
4. -(6b - 2) = -6b + ____
5. 7(m + 2) - ____(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. 1/2(6x + 10) - 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(length + width))
2. You buy n notebooks that cost 3eachand‘n‘pensthatcost3eachand‘n‘pensthatcost2 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 _____
2. -(y - 4) = -y – 4 _____
3. 2(a + 1) + 3(a - 2) = 5a – 4 _____
4. 8 - (b + 2) = 6 – b _____
5. 4(2x - 1) = 8x – 4 _____