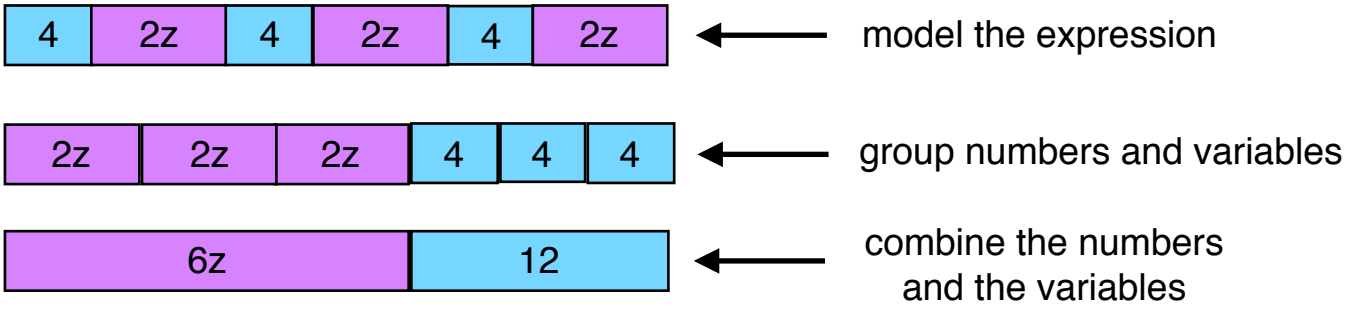
Simplifying with Bars

We now know how to add, subtract, multiply, and divide using bar modeling! And we know what variables are and how to show equality with bar modeling.

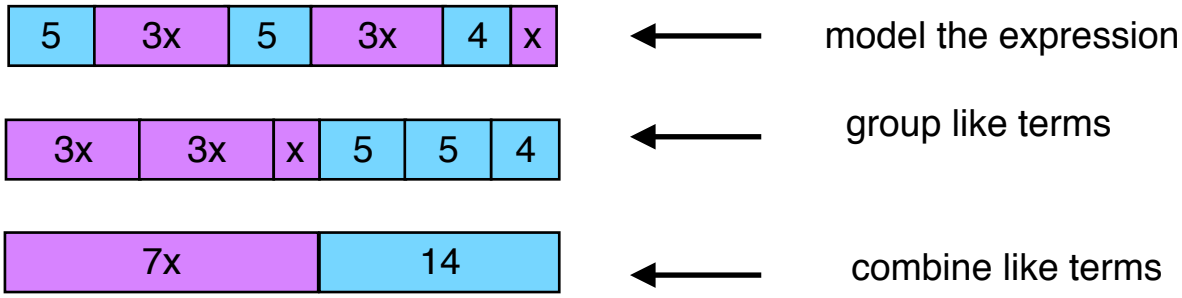
Now it's time to . . .
put it all together!!

Combining Like Terms

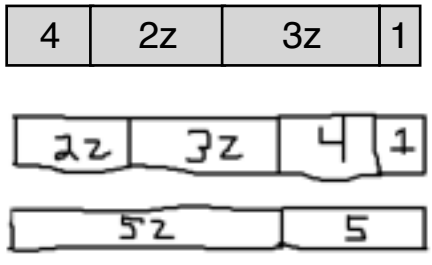
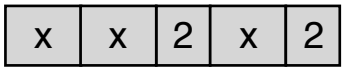
Example 1: Simplify 3(4+2z)

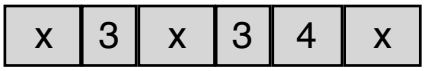
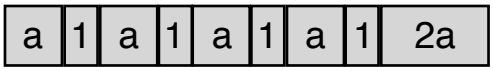
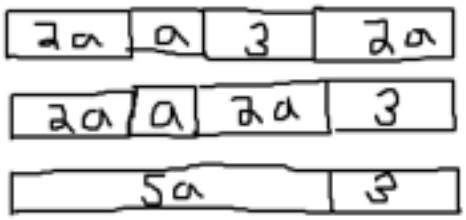


Example 2: Simplify 2(5+3x)+4+x



Practice: Simplify using modeling and combining like terms

4 + 2z + 3z + 1	x + x + 2 + x + 2
	

2(x + 3) + 4 + x 	4(a + 1) + 2a 
2a + a + 3 + 2a 	2x + 2(x + 3)
2 + 4b + 1 + b	4(2b + 2) + b
3a + b + 2 + a + 2b	x + z + 2y + 2z + y

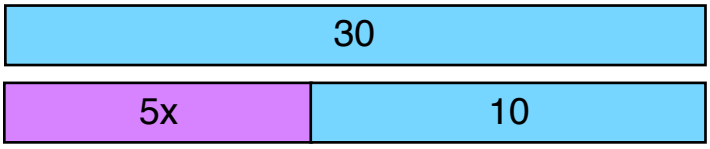
Modeling Equations with Equality

When you're given any equation to solve, you first want to **model** the entire equation.

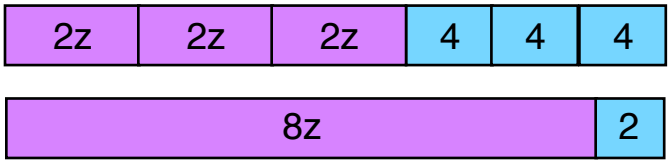
You'll build **two** bars made up of blocks: one bar for each side of the equals sign.

After drawing your model, you want to **check (✓)** to make sure your bars are **equal (=)** in size.

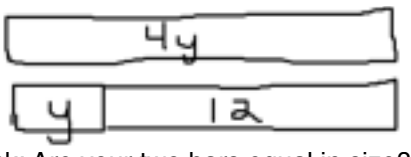
Modeling Example 1: 30=5x+10



Modeling Example 2: 8z+2=3(4+2z)



Practice: Now it's your turn to practice this first step. Model the equation, and then check that your two bars are equal in size.

4y = y +12  Check: Are your two bars equal in size? ✓	20 = 2(q+5) Check: Are your two bars equal in size? ___
a = 2(10)+7 Check: Are your two bars equal in size? ___	4(a+4) = 8(a+1) Check: Are your two bars equal in size? ___