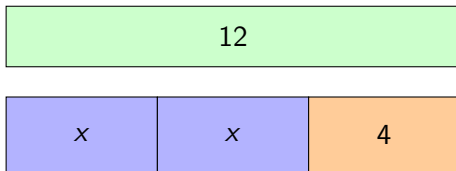


Year 8 Algebra Starters

Starter 1

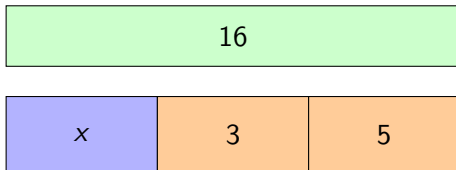
- ▶ Calculate: $-5 + 12$
- ▶ Collect like terms: $3x + 4x$
- ▶ Expand: $3(x + 4)$
- ▶ Solve: $x + 6 = 14$



- ▶ Write an equation represented by the bar model and solve it.
- ▶ If the total was 18 instead of 12, what would x be?
- ▶ Is $3(x + 4) = 3x + 4$ true or false? Explain.

Starter 2

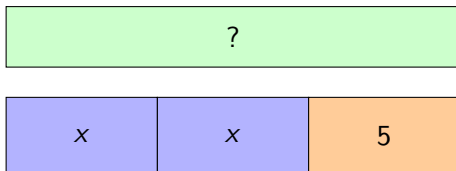
- ▶ Calculate: $6 - 11$
- ▶ Collect like terms: $5x + 2 + 3x$
- ▶ Expand: $4(a + 2)$
- ▶ Solve: $2x = 14$



- ▶ Write the equation represented by the bar model and solve it.
- ▶ Which part of the diagram represents the constant?
- ▶ Create a bar model for $8x + 2 = 26$.
- ▶ Simplify: $ax + bx$

Starter 3

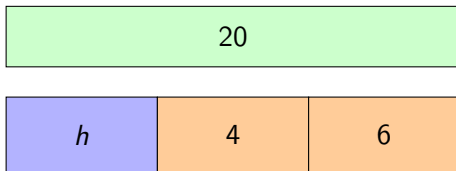
- ▶ Calculate: $-3 + 8$
- ▶ Collect like terms: $6a + 3 + 2a$
- ▶ Expand: $2(x + 7)$
- ▶ Solve: $x - 4 = 9$



- ▶ Suppose the total is 17. Write and solve the equation.
- ▶ Suppose the total is 25. What is x now?
- ▶ Expand: $3(x + 7)$
- ▶ Expand: $3(x - 7)$

Starter 4

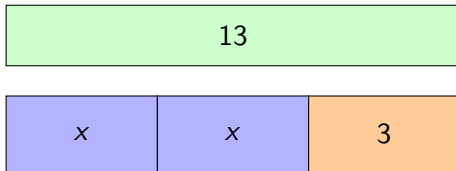
- ▶ Calculate: $-6 \div 3$
- ▶ Collect like terms: $9a - 4a + 2 + 3b$
- ▶ Expand: $5(y + 3)$
- ▶ Solve: $3d = 18$



- ▶ Write an equation represented by the diagram and solve for h .
- ▶ If the 4 block was instead h and the h block was 4, what equation would we have?
- ▶ Expand: $(x - 3)(x - 2)$
- ▶ Simplify: $a^2 \times a \times b$

Starter 5

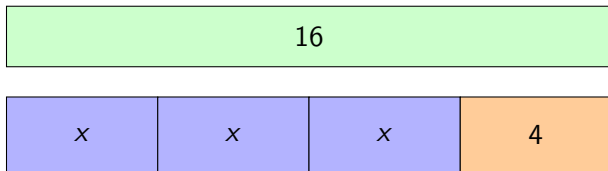
- ▶ Calculate: $7 - 12$
- ▶ Collect like terms: $2x + 7 + 3x$
- ▶ Expand: $3(a + 5)$
- ▶ Solve: $2x + 3 = 11$



- ▶ Write and solve the equation represented by the model.
- ▶ Explain how each part of the diagram matches the equation.
- ▶ Draw a bar model to represent $3x + 3 = 13$.
- ▶ Write an equation with solution $x = 5$.

Starter 6

- ▶ Calculate: -4×6
- ▶ Collect like terms: $7x + 3x - 5$
- ▶ Expand: $2(3x + 4)$
- ▶ Solve: $3x + 5 = 17$
- ▶ Solve: $4x + 3 = 2x + 15$
- ▶ Solve: $\frac{x}{3} + 4 = 9$



- ▶ Write one equation that could be represented by this bar model.
- ▶ Write a different equation with the same solution.
- ▶ Create an equation with solution $x = 4$ that includes a negative term.