

Year 8 Algebra Starters

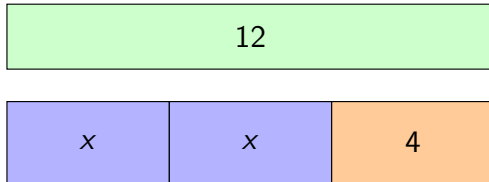
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Starter 1

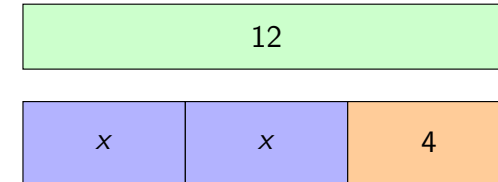
- ▶ Calculate: $-5 + 12 = \underline{\quad}$
- ▶ Collect like terms: $3x + 4x = \underline{\quad}$
- ▶ Expand: $3(x + 4) = \underline{\quad}$
- ▶ Solve: $x + 6 = 14 \Rightarrow \underline{\quad}$



- ▶ 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.

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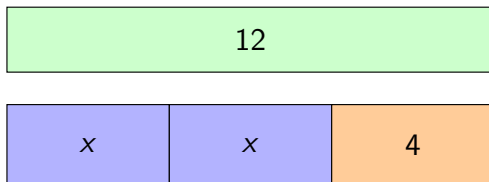
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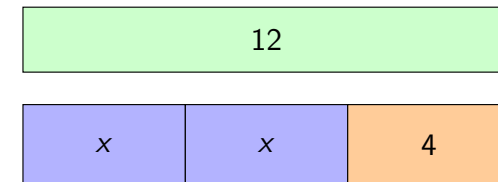
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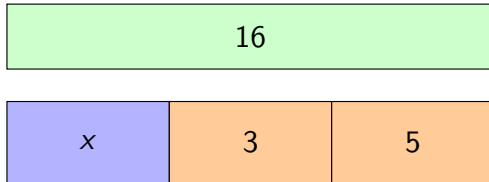
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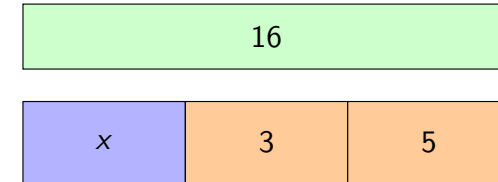
- ▶ Calculate: $6 - 11 = \underline{\hspace{2cm}}$
- ▶ Collect like terms: $5x + 2 + 3x = \underline{\hspace{2cm}}$
- ▶ Expand: $4(a + 2) = \underline{\hspace{2cm}}$
- ▶ Solve: $2x = 14 \Rightarrow \underline{\hspace{2cm}}$



- ▶ 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: $ax + bx = \underline{\hspace{2cm}}$

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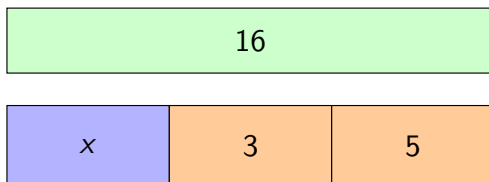
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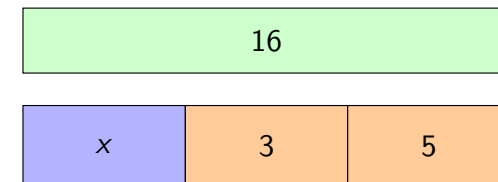
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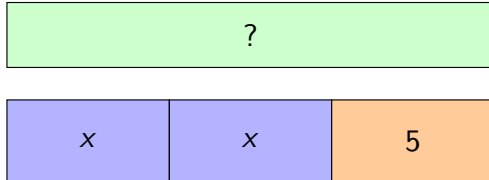
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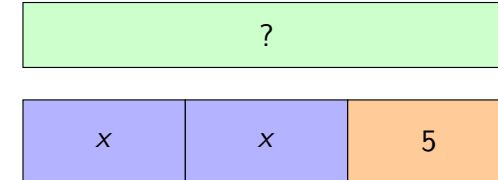
- ▶ Calculate: $-3 + 8 = \underline{\quad}$
- ▶ Collect like terms: $6a + 3 + 2a = \underline{\quad}$
- ▶ Expand: $2(x + 7) = \underline{\quad}$
- ▶ Solve: $x - 4 = 9 \Rightarrow \underline{\quad}$



- ▶ Suppose the total is 17. Write and solve the equation.
- ▶ Suppose the total is 25. What is x now?
- ▶ Expand: $3(x + 7) = \underline{\quad}$
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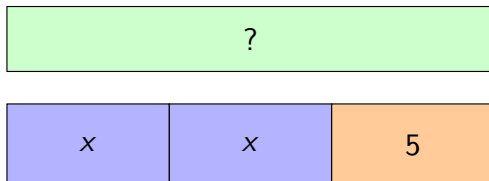
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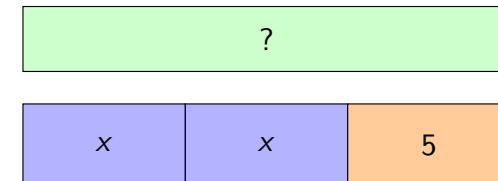
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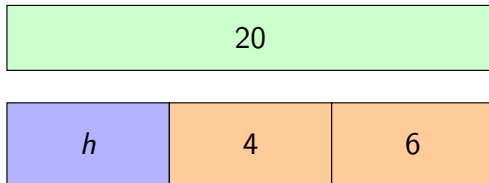
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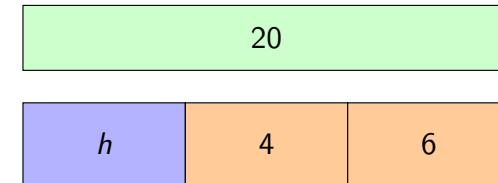
- ▶ Calculate: $-6 \div 3 = \underline{\hspace{2cm}}$
- ▶ Collect like terms: $9a - 4a + 2 + 3b = \underline{\hspace{2cm}}$
- ▶ Expand: $5(y + 3) = \underline{\hspace{2cm}}$
- ▶ Solve: $3d = 18 \Rightarrow \underline{\hspace{2cm}}$



- ▶ 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: $(x - 3)(x - 2) = \underline{\hspace{2cm}}$
- ▶ Simplify: $a^2 \times a \times b = \underline{\hspace{2cm}}$

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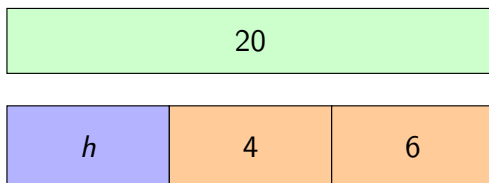
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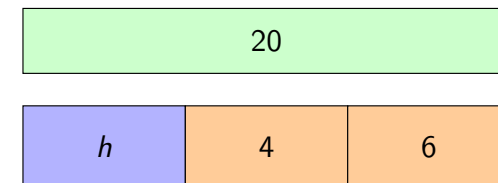
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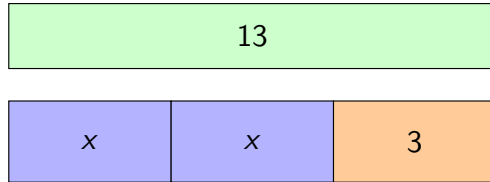
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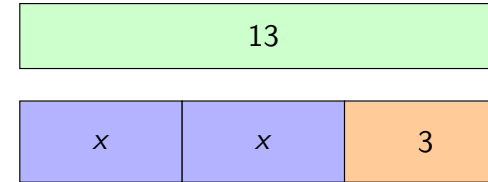
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- ▶ Collect like terms: $2x + 7 + 3x = \underline{\hspace{2cm}}$
- ▶ Expand: $3(a + 5) = \underline{\hspace{2cm}}$
- ▶ Solve: $2x + 3 = 11 \Rightarrow \underline{\hspace{2cm}}$



- ▶ 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 $x = 5$.

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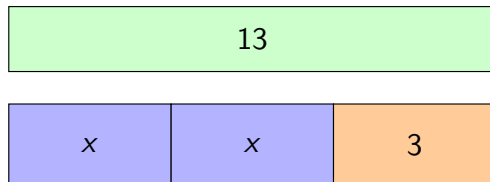
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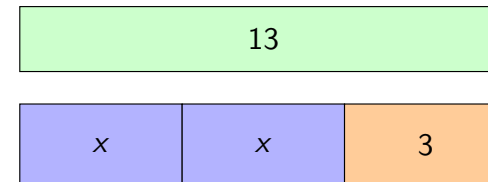
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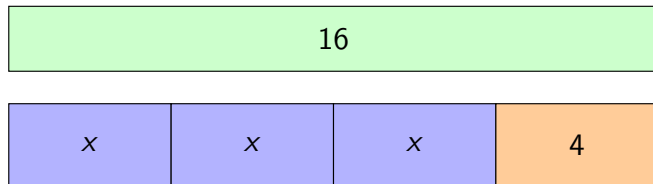
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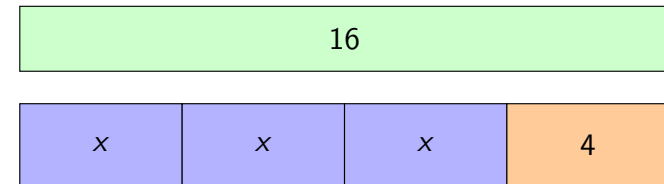
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- ▶ Solve: $3x + 5 = 17 \Rightarrow \underline{\hspace{2cm}}$
- ▶ Solve: $4x + 3 = 2x + 15 \Rightarrow \underline{\hspace{2cm}}$
- ▶ Solve: $\frac{x}{3} + 4 = 9 \Rightarrow \underline{\hspace{2cm}}$



- ▶ 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.

Starter 6

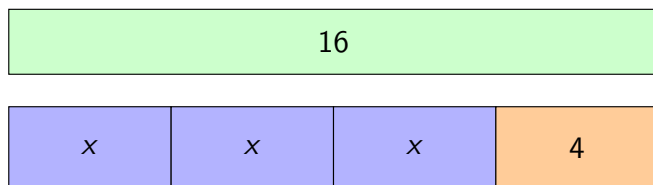
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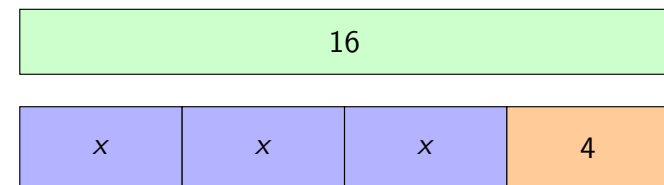
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