

Year 8 Algebra Starters

Starter 1 (1 of 3)

► Calculate: $-5 + 12 = \underline{\hspace{1cm}}$

► Collect wyrazy podobne like terms : $3x + 4x = \underline{\hspace{1cm}}$

► $\text{wymna\acute{z}ać nawiasy}$ Expand : $3(x + 4) = \underline{\hspace{2cm}}$

Starter 1 (1 of 3)

► Calculate: $-5 + 12 = 7$

wyrazy podobne

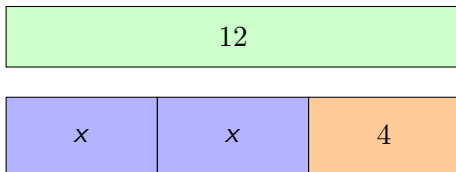
► Collect like terms : $3x + 4x = 7x$

wymnażać nawiasy

► Expand : $3(x + 4) = 3x + 12$

Starter 1 (2 of 3)

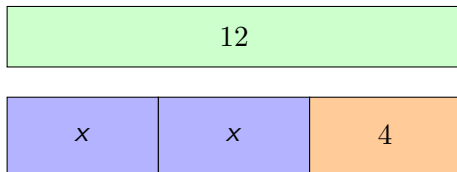
- Solve: $x + 6 = 14 \Rightarrow$ _____



- Write an **równanie** **equation** represented by the **model słupkowy** **bar model** and solve it.

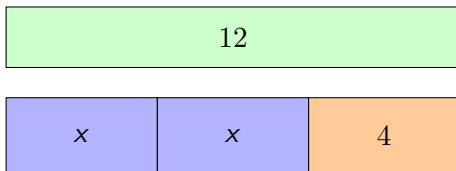
Starter 1 (2 of 3)

- Solve: $x + 6 = 14 \Rightarrow x = 8$



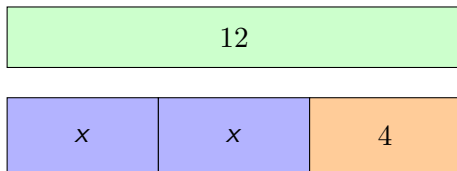
- Write an **równanie** **equation** represented by the **model słupkowy** **bar model** and solve it. $2x + 4 = 12$, so $x = 4$.

Starter 1 (3 of 3)



- ▶ If the total was 18 instead of 12, what would x be?
- ▶ Is $3(x + 4) = 3x + 4$ true or false? Explain.

Starter 1 (3 of 3)



- ▶ If the total was 18 instead of 12, what would x be $x = 7$.
- ▶ Is $3(x + 4) = 3x + 4$ true or false? Explain. False, because $3(x + 4) = 3x + 12$.

Starter 2 (1 of 3)

► Calculate: $6 - 11 = \underline{\hspace{2cm}}$

wyrazy podobne

► Collect like terms : $5x + 2 + 3x = \underline{\hspace{2cm}}$

wymnażać nawiasy

► Expand : $4(a + 2) = \underline{\hspace{2cm}}$

Starter 2 (1 of 3)

► Calculate: $6 - 11 = -5$

wyrazy podobne

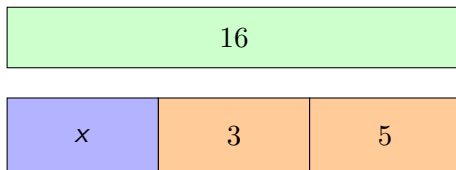
► Collect like terms : $5x + 2 + 3x = 8x + 2$

wymnażać nawiasy

► Expand : $4(a + 2) = 4a + 8$

Starter 2 (2 of 3)

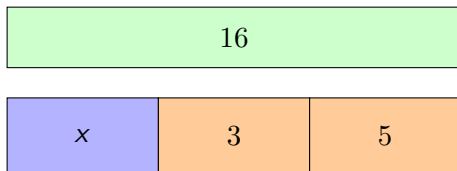
- Solve: $2x = 14 \Rightarrow$ _____



- Write the **równanie** **equation** represented by the **model słupkowy** **bar model** and solve it.
- Which part of the diagram represents the **stała** **constant**?

Starter 2 (2 of 3)

- Solve: $2x = 14 \Rightarrow x = 7$



- Write the **równanie** **equation** represented by the **model słupkowy** **bar model** and solve it. $x + 3 + 5 = 16$, so $x = 8$.
- Which part of the diagram represents the **stała** **constant**? **The 3 and 5 blocks (total 8).**

Starter 2 (3 of 3)

- ▶ Create a **model słupkowy** **bar model** for $8x + 2 = 26$.
- ▶ Simplify: $ax + bx =$ _____

Starter 2 (3 of 3)

model słupkowy

- ▶ Create a bar model for $8x + 2 = 26$. Eight x -blocks and a 2-block, with total 26.
- ▶ Simplify: $ax + bx = (a + b)x$

Starter 3 (1 of 3)

► Calculate: $-3 + 8 = \underline{\quad}$

wyrazy podobne

► Collect like terms : $6a + 3 + 2a = \underline{\hspace{2cm}}$

wymnażać nawiasy

► Expand : $2(x + 7) = \underline{\hspace{2cm}}$

Starter 3 (1 of 3)

► Calculate: $-3 + 8 = 5$

wyrazy podobne

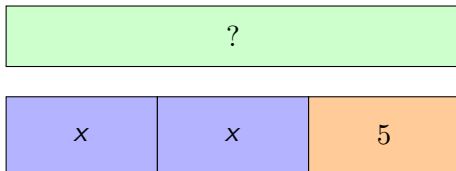
► Collect like terms : $6a + 3 + 2a = 8a + 3$

wymnażać nawiasy

► Expand : $2(x + 7) = 2x + 14$

Starter 3 (2 of 3)

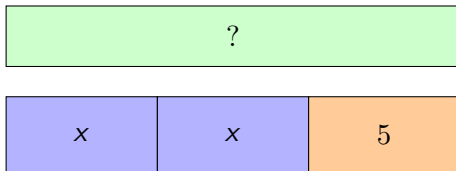
- Solve: $x - 4 = 9 \Rightarrow$ _____



- Suppose the total is 17. Write and solve the równanie equation .
- Suppose the total is 25. What is x now?

Starter 3 (2 of 3)

- Solve: $x - 4 = 9 \Rightarrow x = 13$



równanie

- Suppose the total is 17. Write and solve the equation .

$$2x + 5 = 17, \text{ so } x = 6.$$

- Suppose the total is 25. What is x now $x = 10$.

Starter 3 (3 of 3)

wymnażyć nawiasy

► Expand : $3(x + 7) = \underline{\hspace{2cm}}$

wymnażyć nawiasy

► Expand : $3(x - 7) = \underline{\hspace{2cm}}$

Starter 3 (3 of 3)

wymnażać nawiasy

► Expand : $3(x + 7) = 3x + 21$

wymnażać nawiasy

► Expand : $3(x - 7) = 3x - 21$

Starter 4 (1 of 3)

► Calculate: $-6 \div 3 = \underline{\hspace{1cm}}$

wyrazy podobne

► Collect like terms : $9a - 4a + 2 + 3b = \underline{\hspace{2cm}}$

wymnazać nawiasy

► Expand : $5(y + 3) = \underline{\hspace{2cm}}$

Starter 4 (1 of 3)

► Calculate: $-6 \div 3 = -2$

wyrazy podobne

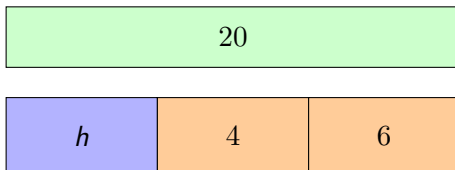
► Collect like terms : $9a - 4a + 2 + 3b = 5a + 2 + 3b$

wymnażać nawiasy

► Expand : $5(y + 3) = 5y + 15$

Starter 4 (2 of 3)

- Solve: $3d = 18 \Rightarrow$ _____

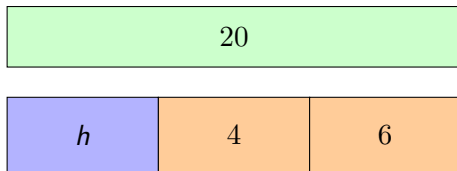


równanie

- 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?

Starter 4 (2 of 3)

- Solve: $3d = 18 \Rightarrow d = 6$



równanie

- Write an equation represented by the diagram and solve for

h . $h + 4 + 6 = 20$, so $h = 10$.

- If the 4 block was instead h and the h block was 4, what

równanie

equation would we have $4 + h + 6 = 20$.

Starter 4 (3 of 3)

wymnażać nawiasy

► Expand : $(x - 3)(x - 2) = \underline{\hspace{2cm}}$

► Simplify: $a^2 \times a \times b = \underline{\hspace{2cm}}$

Starter 4 (3 of 3)

wymnażać nawiasy

► Expand : $(x - 3)(x - 2) = x^2 - 5x + 6$

► Simplify: $a^2 \times a \times b = a^3b$

Starter 5 (1 of 3)

► Calculate: $7 - 12 = \underline{\hspace{2cm}}$

wyrazy podobne

► Collect like terms : $2x + 7 + 3x = \underline{\hspace{2cm}}$

wymnażać nawiasy

► Expand : $3(a + 5) = \underline{\hspace{2cm}}$

Starter 5 (1 of 3)

► Calculate: $7 - 12 = -5$

wyrazy podobne

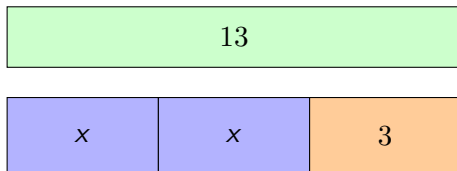
► Collect like terms : $2x + 7 + 3x = 5x + 7$

wymnażać nawiasy

► Expand : $3(a + 5) = 3a + 15$

Starter 5 (2 of 3)

- Solve: $2x + 3 = 11 \Rightarrow$ _____



równanie

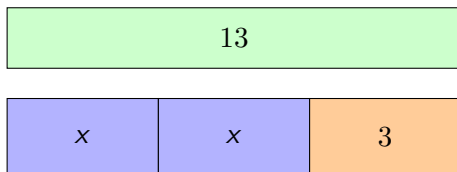
- Write and solve the **equation** represented by the model.

równanie

- Explain how each part of the diagram matches the **equation**.

Starter 5 (2 of 3)

- Solve: $2x + 3 = 11 \Rightarrow x = 4$



równanie

- Write and solve the **equation** represented by the model.

$$2x + 3 = 13, \text{ so } x = 5.$$

równanie

- Explain how each part of the diagram matches the **equation**.

Two x -blocks and a 3-block make the total 13.

Starter 5 (3 of 3)

- ▶ Draw a **model słupkowy** **bar model** to represent $3x + 3 = 13$.
- ▶ Write an **równanie** **equation** with **rozwiązanie** **solution** $x = 5$.

Starter 5 (3 of 3)

model słupkowy

- ▶ Draw a **bar model** to represent $3x + 3 = 13$.

równanie rozwiązanie

- ▶ Write an **equation** with **solution** $x = 5$. e.g. $x + 2 = 7$.



$$3x + 3 = 13$$

Starter 6 (1 of 3)

► Calculate: $-4 \times 6 = \underline{\hspace{2cm}}$

wyrazy podobne

► Collect like terms : $7x + 3x - 5 = \underline{\hspace{2cm}}$

wymnażać nawiasy

► Expand : $2(3x + 4) = \underline{\hspace{2cm}}$

Starter 6 (1 of 3)

- ▶ Calculate: $-4 \times 6 = -24$

wyrazy podobne

- ▶ Collect like terms : $7x + 3x - 5 = 10x - 5$

wymnażać nawiasy

- ▶ Expand : $2(3x + 4) = 6x + 8$

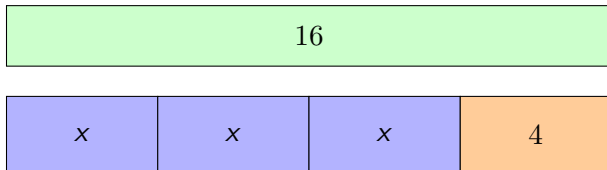
Starter 6 (2 of 3)

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

Starter 6 (2 of 3)

- ▶ Solve: $3x + 5 = 17 \Rightarrow x = 4$
- ▶ Solve: $4x + 3 = 2x + 15 \Rightarrow x = 6$
- ▶ Solve: $\frac{x}{3} + 4 = 9 \Rightarrow x = 15$

Starter 6 (3 of 3)



równanie

- Write one **equation** that could be represented by this **model słupkowy** **bar model** .

równanie

rozwiązanie

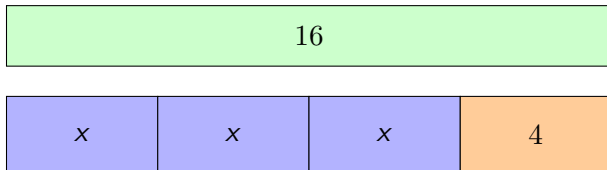
- Write a different **equation** with the same **solution** .

równanie

rozwiązanie

- Create an **equation** with **solution** $x = 4$ that includes a **ujemny wyraz** **negative term** .

Starter 6 (3 of 3)



równanie

- Write one **equation** that could be represented by this **model słupkowy**

bar model . $3x + 4 = 16$.

równanie

rozwiązanie

- Write a different **equation** with the same **solution** . e.g.

$$2x + 3 = 11.$$

równanie

rozwiązanie

- Create an **equation** with **solution** $x = 4$ that includes a **ujemny wyraz**
negative term . e.g. $2x - 3 = 5$.