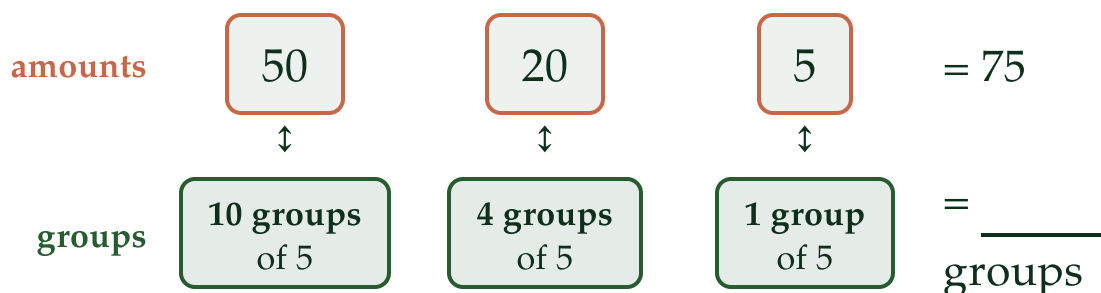




See the Groups in the Chunks

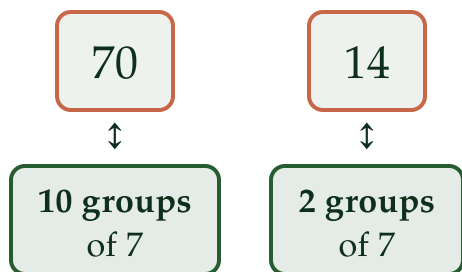
The chunks are already made. Your only job: **count the groups** inside them.

1. $75 \div 5$. Every amount is matched with its groups. Finish the count.



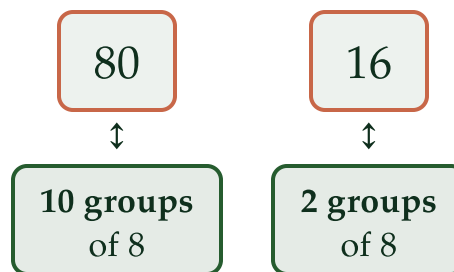
$10 + 4 + 1 = \underline{\hspace{2cm}}$ groups, so $75 \div 5 = \underline{\hspace{2cm}}$

2. $84 \div 7$



$10 + 2 = \underline{\hspace{2cm}}$ groups, so $84 \div 7 = \underline{\hspace{2cm}}$

3. $96 \div 8$



$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$ groups,
so $96 \div 8 = \underline{\hspace{2cm}}$

This page is not about dividing. It is about what the pieces of the answer **mean**.



Match Amounts to Groups

chunk of amount = **number of groups** × **group size**

1. $96 \div 6$. Draw a line from each amount to the groups it holds.

60

1 group of 6

30

10 groups of 6

6

5 groups of 6

_____ + _____ + _____ =
 _____ groups, so $96 \div 6 =$ _____

2. $130 \div 5$. Match, then total the groups.

100

5 groups of 5

25

1 group of 5

5

20 groups of 5

_____ + _____ + _____ =
 _____ groups, so $130 \div 5 =$ _____

check one match: $60 = 10$ groups of 6 because $10 \times 6 =$ _____

Matching is multiplication in reverse. That is the whole secret of this unit.



Build the Whole from Groups

This time the groups come first. Build the amounts, then the whole.

1. Fill each amount. Then use the amounts to finish the division.

10 groups of 7



4 groups of 7



2 groups of 7



$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = 112 \quad \text{so } 112 \div 7 = \underline{\hspace{2cm}}$$

2. Same idea with groups of 8.

10 groups of 8



5 groups of 8



3 groups of 8



$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = 144 \quad \text{so } 144 \div 8 = \underline{\hspace{2cm}}$$

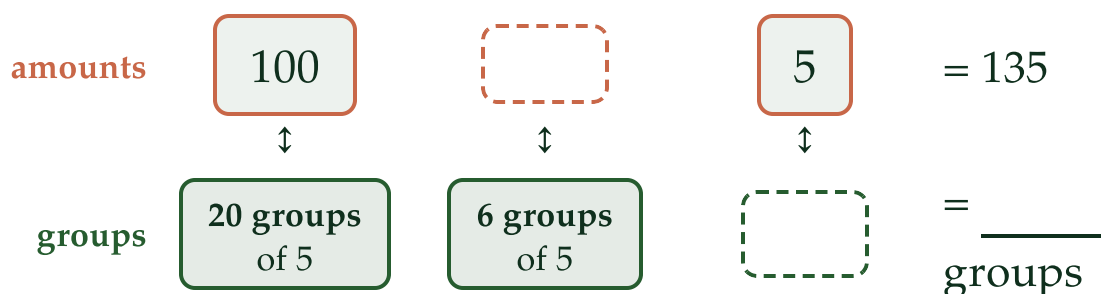
If you can build a whole from groups, you can also take one apart. Both directions matter.



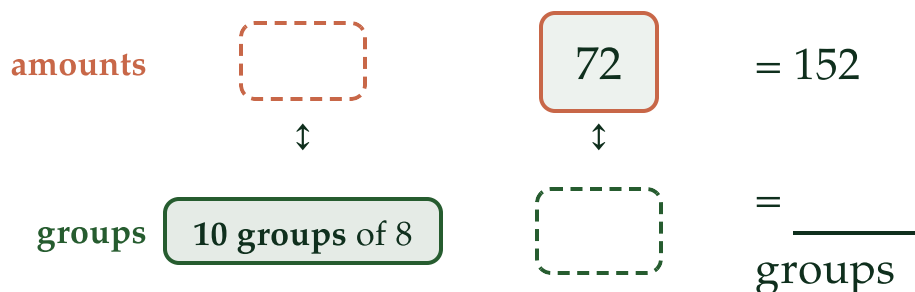
Finish the Chunking

Something is missing in each one. Sometimes an amount, sometimes a group count.

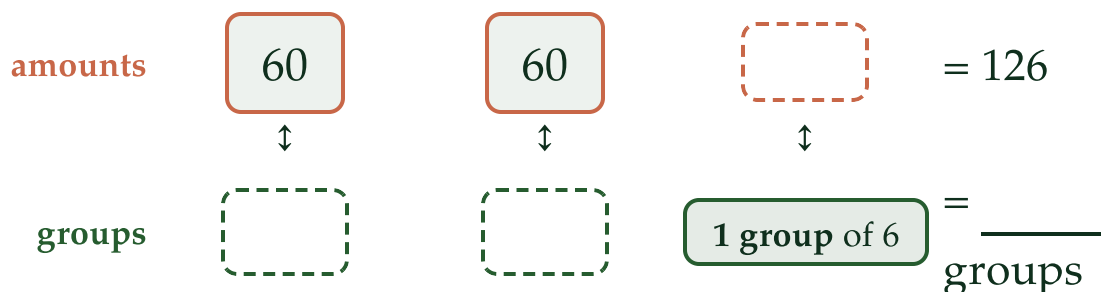
1. $135 \div 5$



2. $152 \div 8$



3. $126 \div 6$





Choose Useful Groups First

Do not carve the number yet. First: **what groups of 7 do you know quickly?**

1. Fill your fact bank.

10 groups of 7	=		5 groups of 7	=		2 groups of 7	=		1 gr
----------------	---	---	---------------	---	---	---------------	---	---	------

2. **Build 119** from amounts in your bank. Keep each amount over its groups.

amounts				= 119
	↑↓	↑↓	↑↓	
groups				= _____ groups

so $119 \div 7 =$ _____ *two chunks is fine. Cross out a box you do not need.*

3. **Build 98** the same way.

amounts				= 98
	↑↓	↑↓	↑↓	
groups				= _____ groups

so $98 \div 7 =$ _____



Roots of Reason

Name _____

Date _____

Choose Useful Chunks

Find chunks of the whole that are **easy groups of the divisor**.

1. $175 \div 7$

amounts

= 175

groups

= _____ groups

$$175 \div 7 = \underline{\hspace{2cm}}$$

2. $144 \div 6$

amounts

= 144

groups

= _____ groups

$$144 \div 6 = \underline{\hspace{2cm}}$$

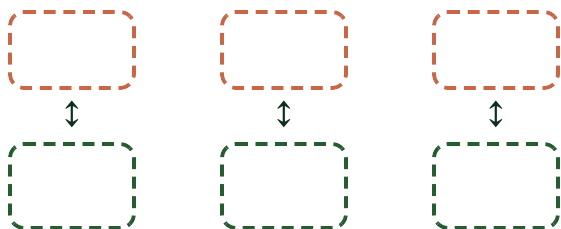
Two chunks, three chunks, or more. Use the boxes you need and skip the rest.



Different Chunks, Same Groups

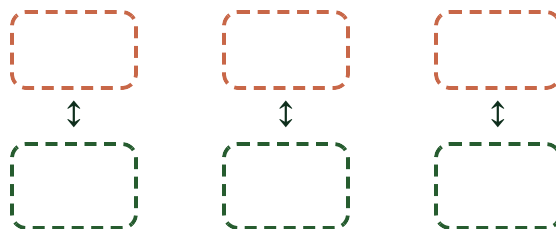
$168 \div 6$ • solve it two different ways

1. first way



amounts = 168 • groups =

2. second way, with different chunks



amounts = 168 • groups =

3. What stayed the same?

4. What changed?

252 ÷ 7 · three students chunked it three ways

$$210 + 42$$

equals 252? ☐ yes ☐ no

easy groups of 7? ☐ yes

☐ no
$$140 + 70 + 42$$

equals 252? ☐ yes ☐ no

easy groups of 7? ☐ yes

☐ no
$$200 + 50 + 2$$

equals 252? ☐ yes ☐ no

easy groups of 7? ☐ yes

☐ no

1. Which one would you actually use? Why? A chunking can keep the value and still be a poor choice.

2. Finish the division with your pick: $252 \div 7 =$



Roots of Reason

Name _____

Date _____

From Groups to Division Equations

The equation is **shorthand** for group reasoning you already understand.

1. Translate both ways. Each row is one fact, written twice.

$$140 = 20 \text{ groups of } 7 \quad \longrightarrow \quad 140 \div 7 = \underline{\hspace{2cm}}$$

$$35 = \underline{\hspace{2cm}} \text{ groups of } 7 \quad \longleftarrow \quad 35 \div 7 = 5$$

$$120 = \underline{\hspace{2cm}} \text{ groups of } 6 \quad \longrightarrow \quad 120 \div 6 = \underline{\hspace{2cm}}$$

2. $175 = 140 + 35$, so the quotients add too.

$$175 \div 7 = 140 \div 7 + 35 \div 7 = \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

3. Your turn: $132 = 120 + 12$.

$$132 \div 6 = \underline{\hspace{2cm}} \div 6 + \underline{\hspace{2cm}} \div 6 = \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Nothing new happened on this page. Only the writing got shorter.



Roots of Reason

Name _____

Date _____

Chunk Without the Scaffold

Only one hint this time: **what groups do you know?**

1. $156 \div 6$

= _____

2. $245 \div 7$

= _____

3. $312 \div 8$

= _____

4. $364 \div 7$

= _____



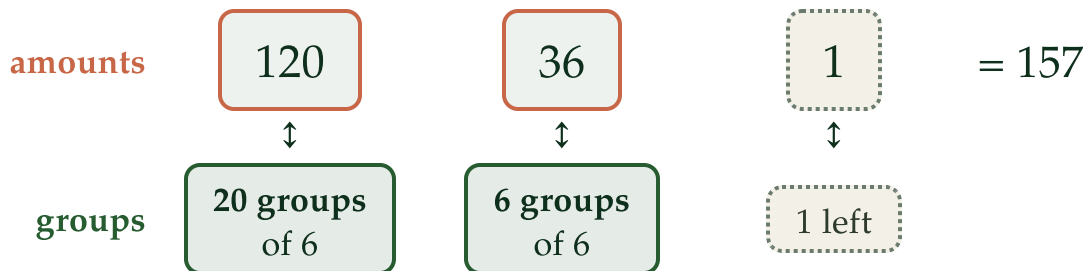
Roots of Reason

Name _____ Date _____

Remainders: Full Groups and What Is Left

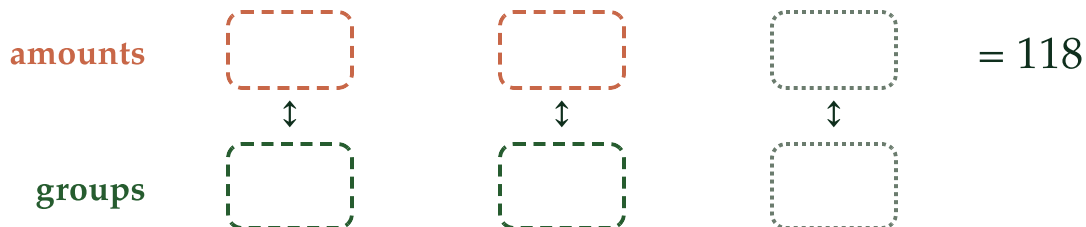
Pull out full groups. What is too small to make one more group is **what is left**.

1. $157 \div 6$. The chunks are made. Finish the count.



_____ full groups, _____ left over, so $157 \div 6 =$ _____ R _____

2. $118 \div 9$. Make the chunks yourself. One piece will not fit a full group.



_____ full groups, _____ left over, so $118 \div 9 =$ _____ R _____

Say it in words first: "26 full groups, 1 left over." Only then write 26 R1.



Mixed Transfer: Find the Chunks Yourself

Nobody labeled the strategy. **Can chunking make this easier? Show how.**

1. 6×38

2. $175 \div 7$

3. $398 + 247$

4. write $\frac{11}{4}$ as a whole
number and a fraction