the National Parent Forum of Scotland

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Learning Together

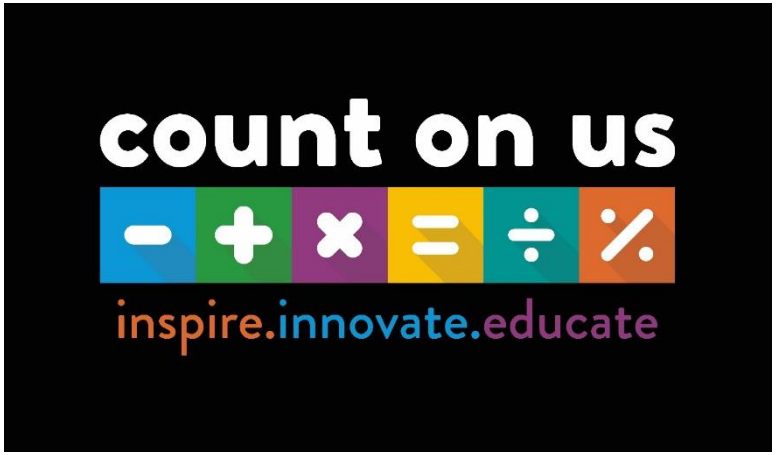
Online Numeracy and Mathematics sessions for parents to support Learning at Home

With support from Education Scotland and Scottish Government, building on themes emerging from the 'Making Maths Count' Group report

Education Scotland
Foghlam Alba

Scottish Government
Riaghaltas na h-Alba
gov.scot

MAKING MATHS COUNT



Learning Together Session 4

Tuesday 16th June 10:00

Fractions

#npfsmaths

Twitter : @CountOnUsEd

Learning Together Session 4
Fractions:

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- What is a fraction?
- Fraction sizes
- Equivalent fractions
- Fraction of a quantity
- Ordering fractions
- What fraction is bigger: using ½ as a benchmark
- What fraction is bigger: using ¼ as a benchmark

All slides and resources can be found at

www.countonus.org.uk/learning-together

#npfsmaths

What is a fraction?

What is a Fraction

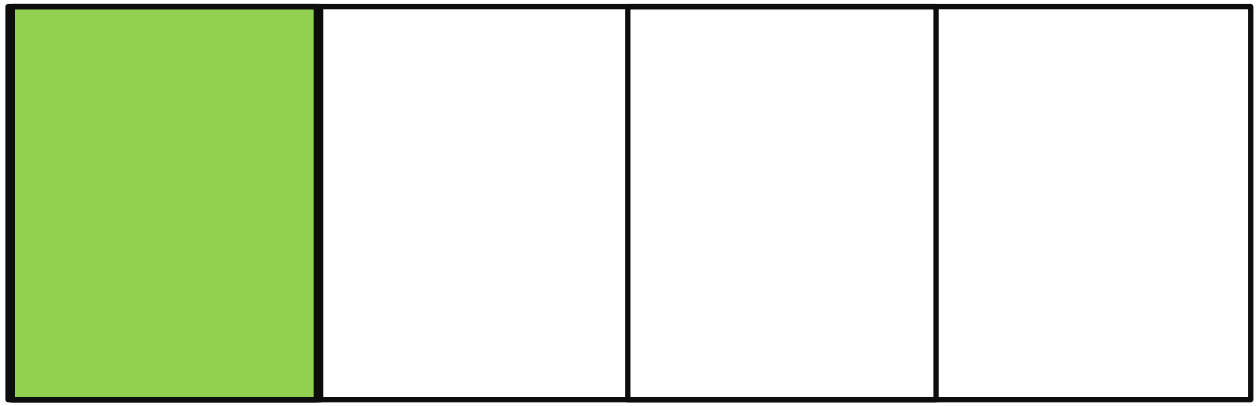
1 PART SHADED OUT OF 2 TOTAL PARTS

$$\frac{1}{2}$$

Numerator - The number of parts of the fraction we are focusing on

Denominator - The number of equal parts the whole is cut into

What is a Fraction



1 PART SHADED OUT OF 4 TOTAL PARTS

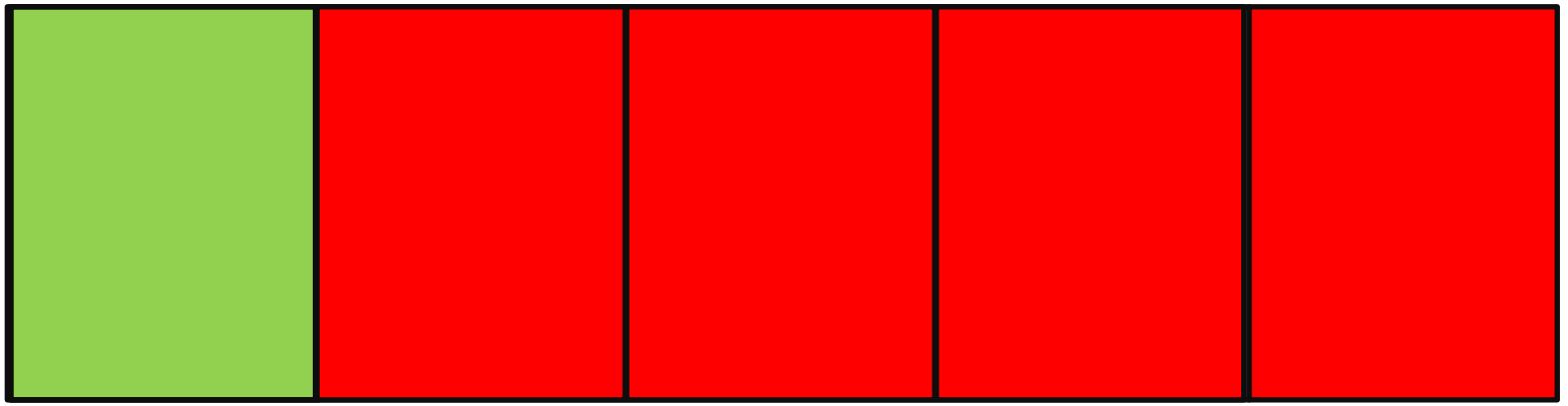
$$\frac{1}{4}$$

Numerator - The number of parts of the fraction we are focusing on

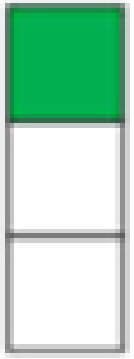
Denominator - The number of equal parts the whole is cut into

1. What fraction is green? $\frac{1}{5}$

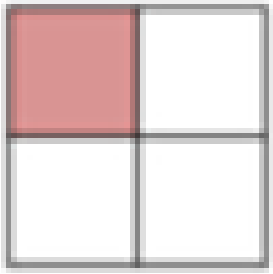
1. What fraction is red? $\frac{4}{5}$



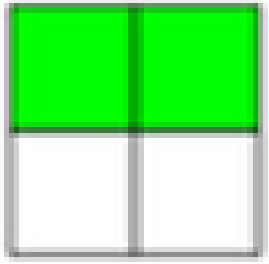
What fraction of the whole is the shaded area in these drawings?



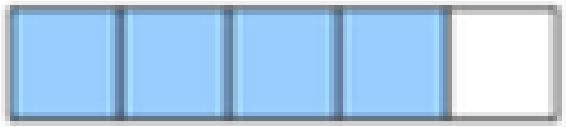
$\frac{1}{3}$



$\frac{1}{4}$

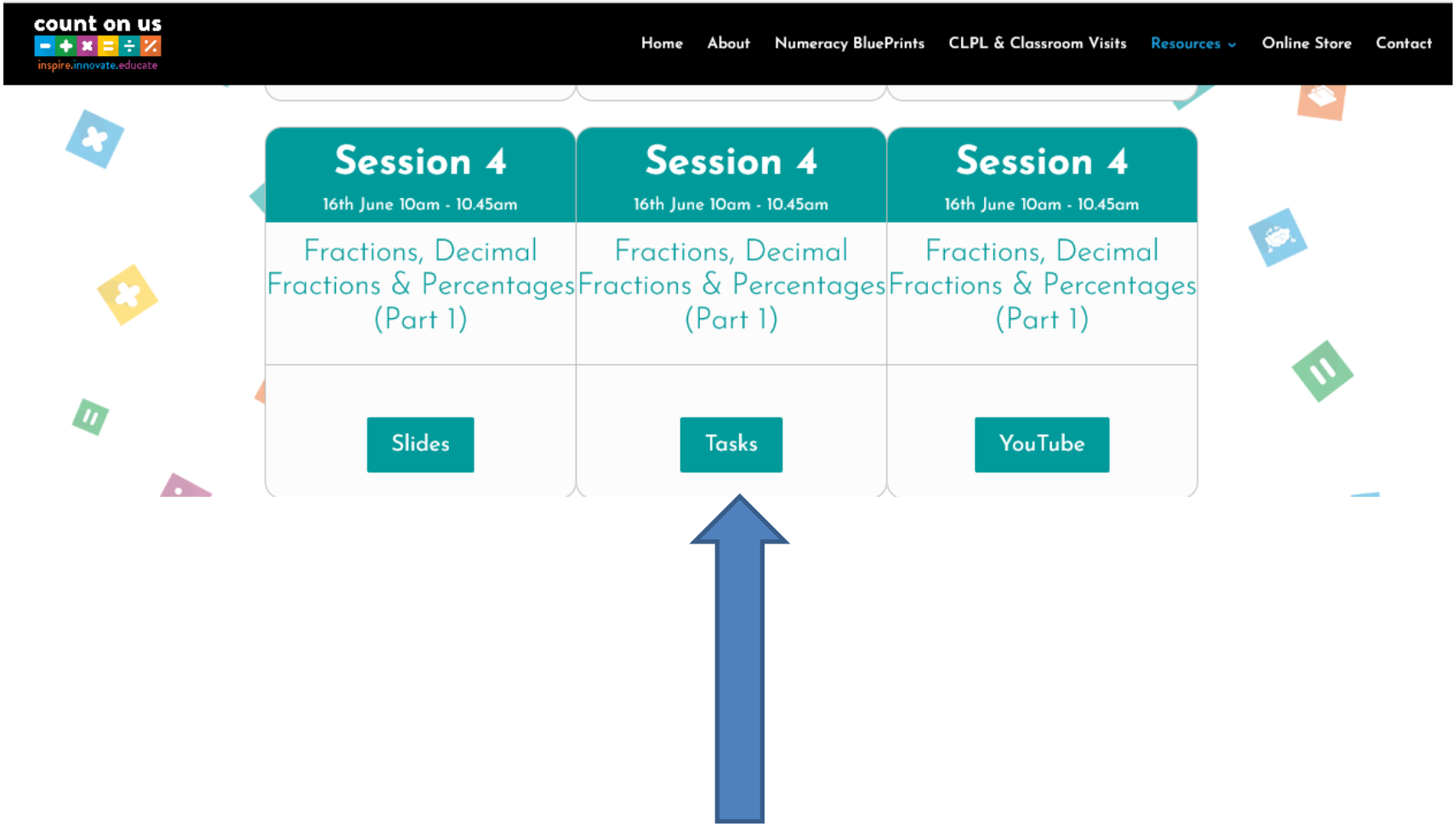


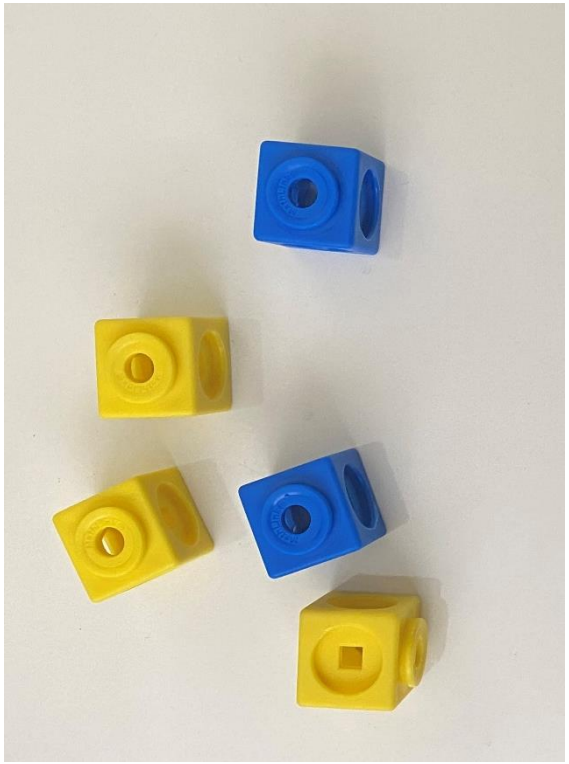
$\frac{2}{4}$

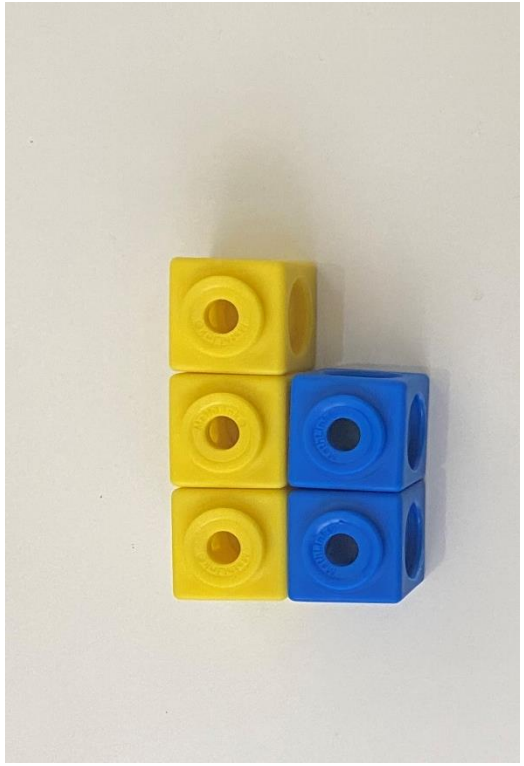


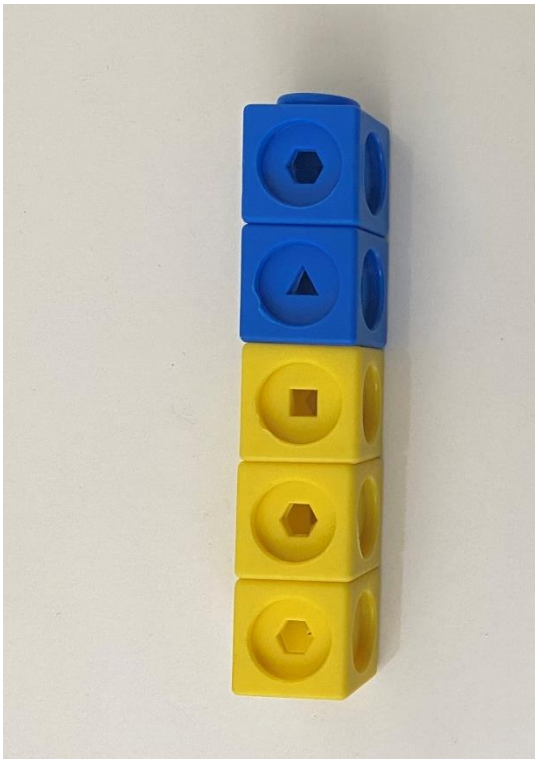
$\frac{4}{5}$

All slides and resources can be found at www.countonus.org.uk/learning-together



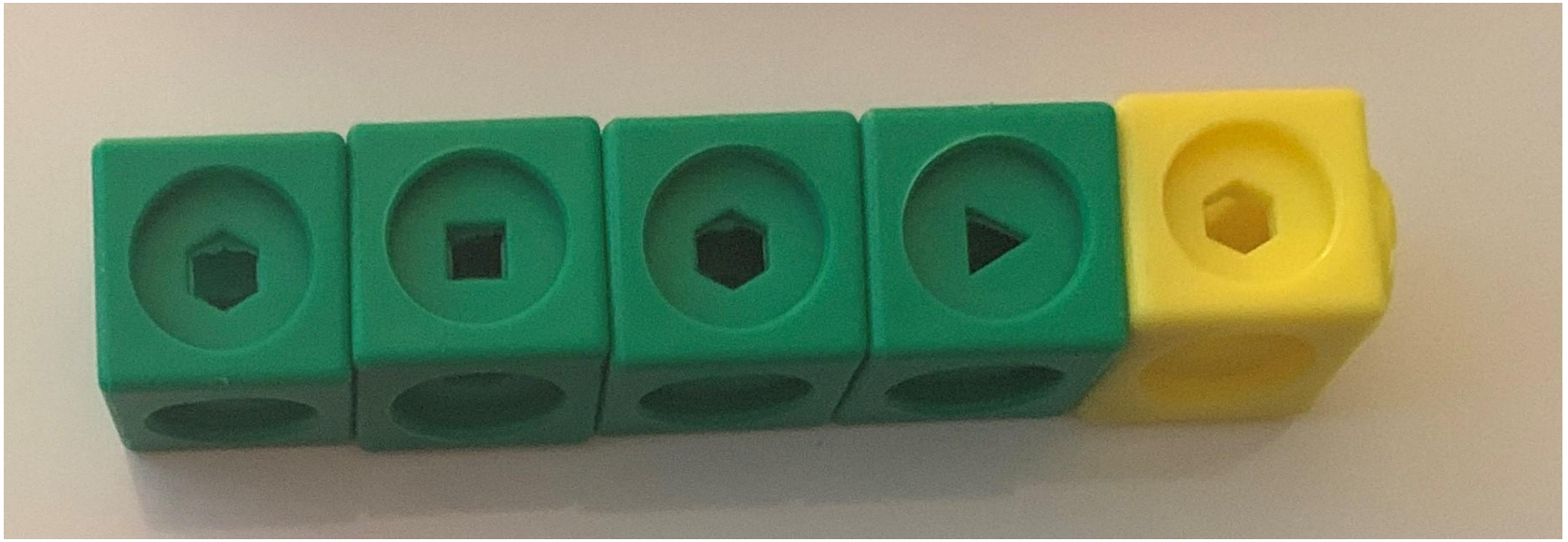






What fraction are yellow?

$\frac{3}{5}$



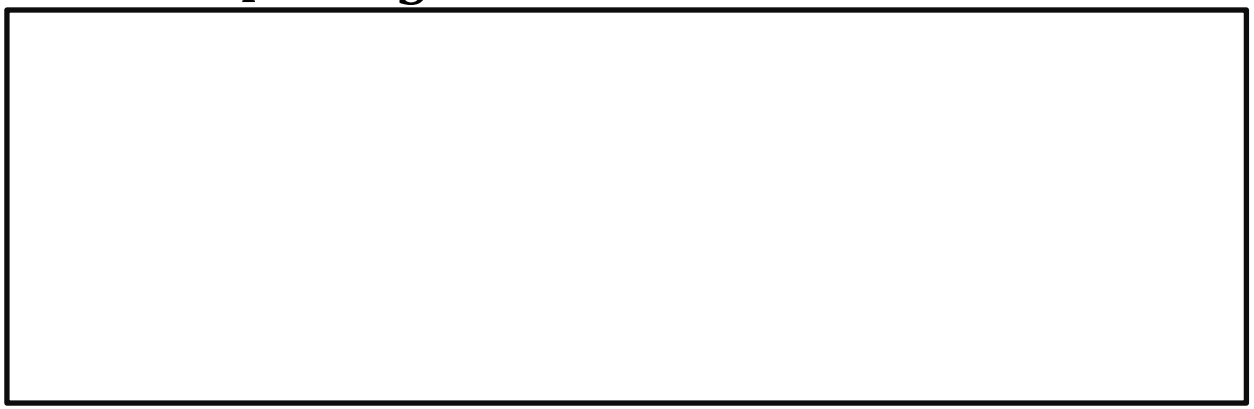
What fraction are yellow?

$\frac{1}{5}$

$\frac{1}{2}$	One half
$\frac{1}{3}$	One third
$\frac{1}{4}$	One quarter
$\frac{1}{5}$	One fifth
$\frac{1}{6}$	One sixth
$\frac{1}{7}$	One seventh
$\frac{1}{8}$	One eighth
$\frac{1}{9}$	One ninth
$\frac{1}{10}$	One tenth

Fraction sizes

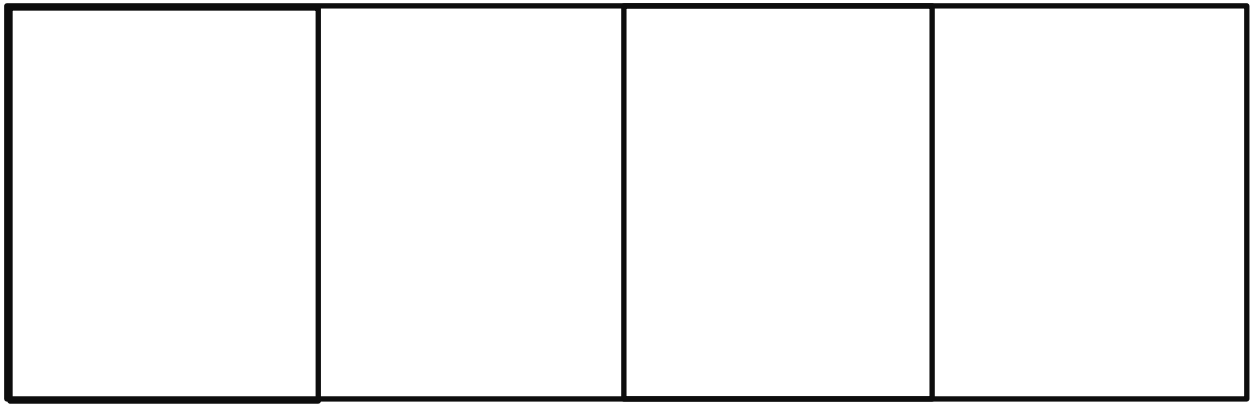
What is bigger $\frac{1}{4}$ or $\frac{1}{3}$



Fraction sizes

What is bigger $\frac{1}{4}$ or $\frac{1}{3}$

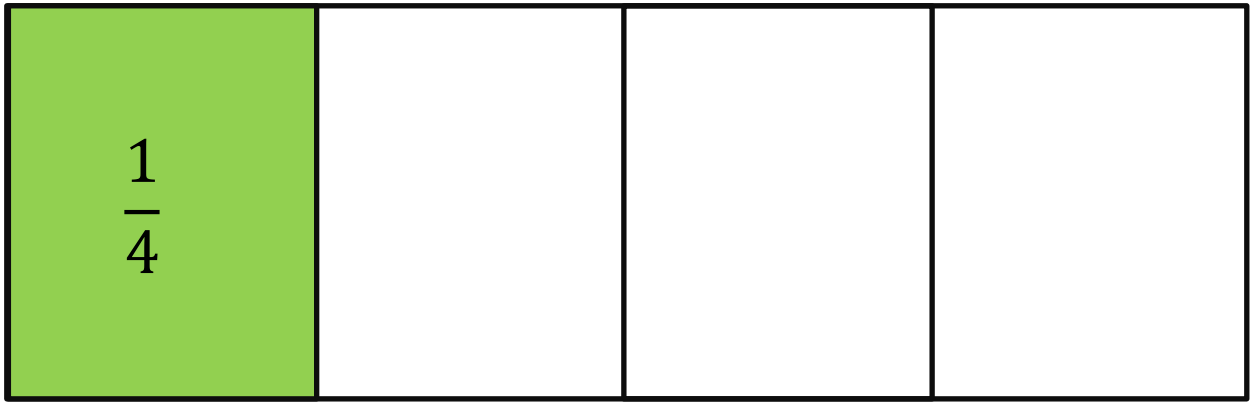
Shade $\frac{1}{4}$



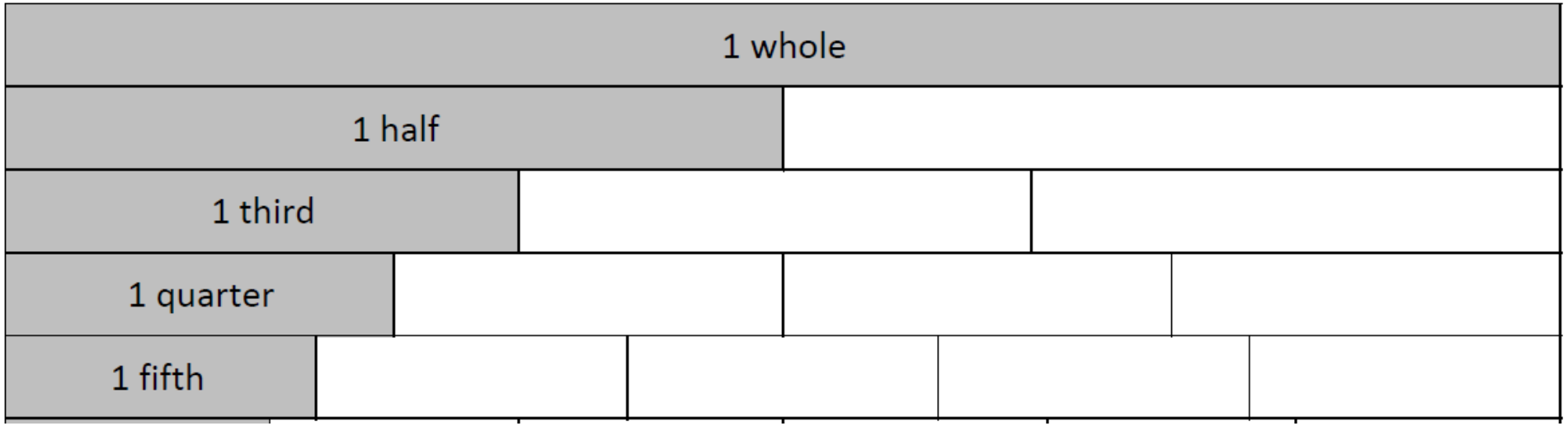
Shade $\frac{1}{3}$

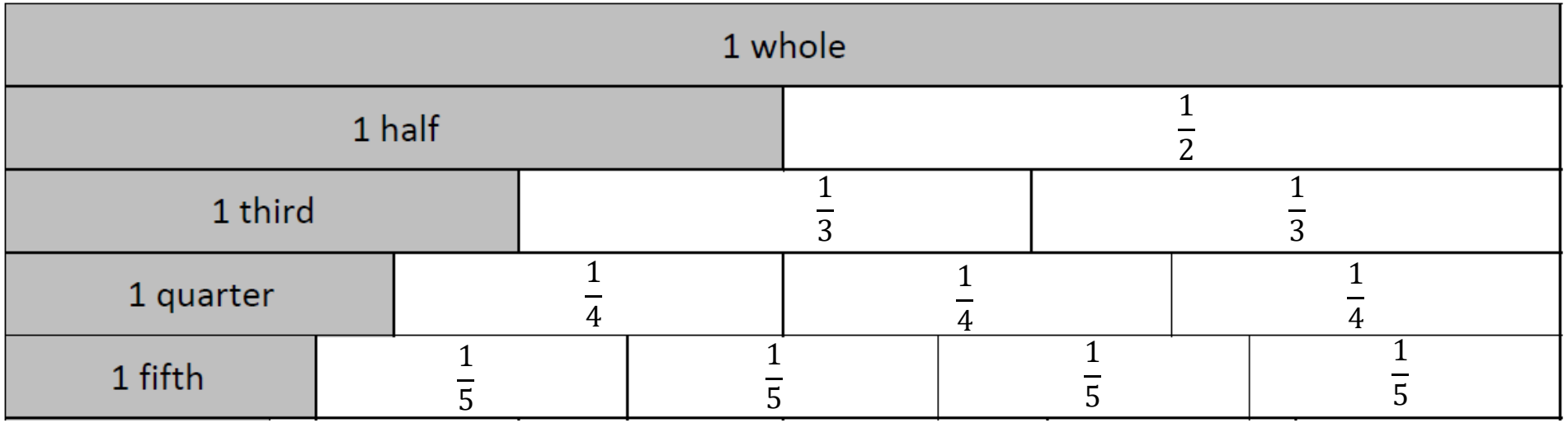
Fraction sizes

What is bigger $\frac{1}{4}$ or $\frac{1}{3}$

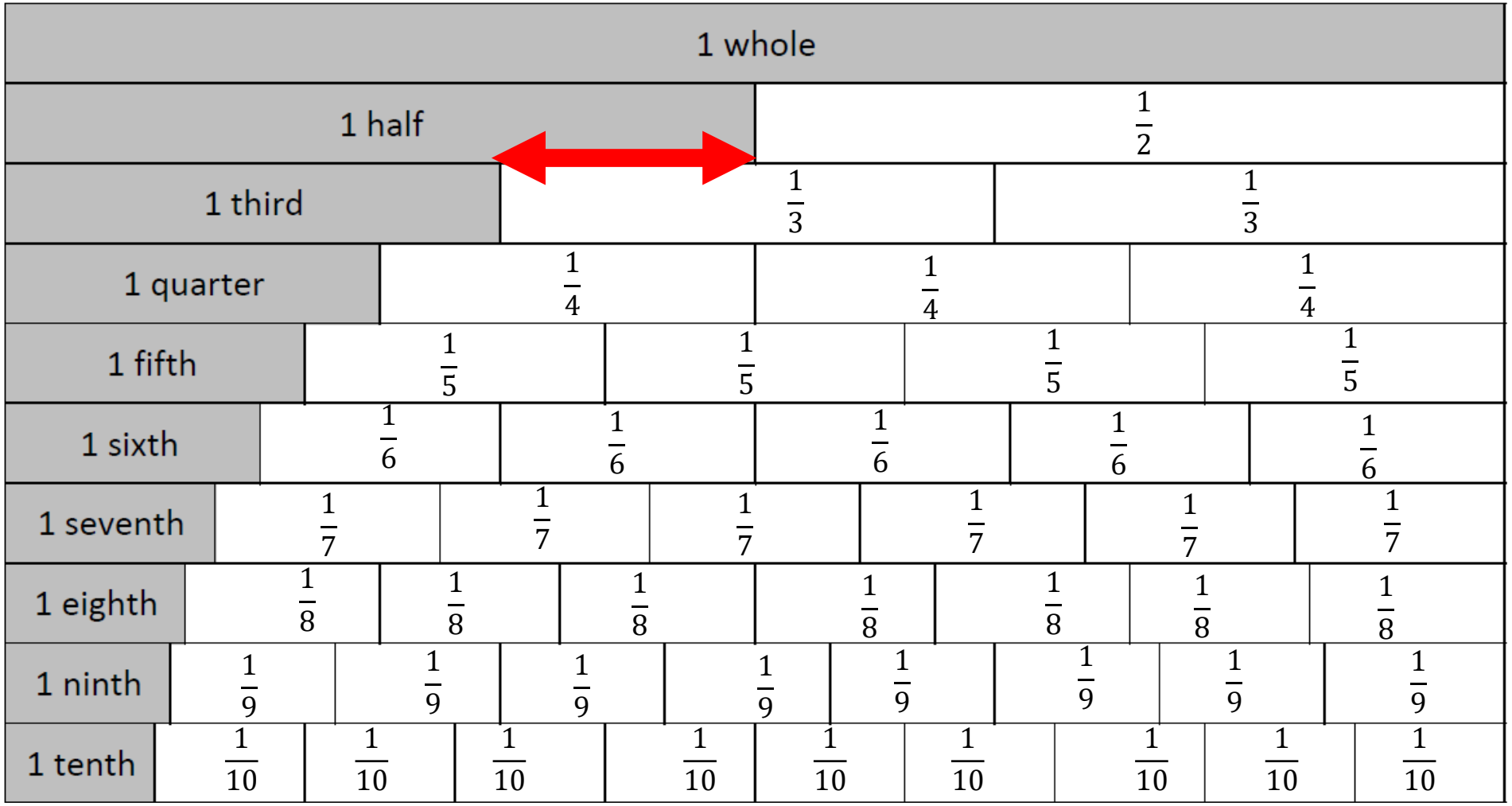


$\frac{1}{3}$ is bigger than $\frac{1}{4}$


1 whole
1 half
1 third
1 quarter
1 fifth

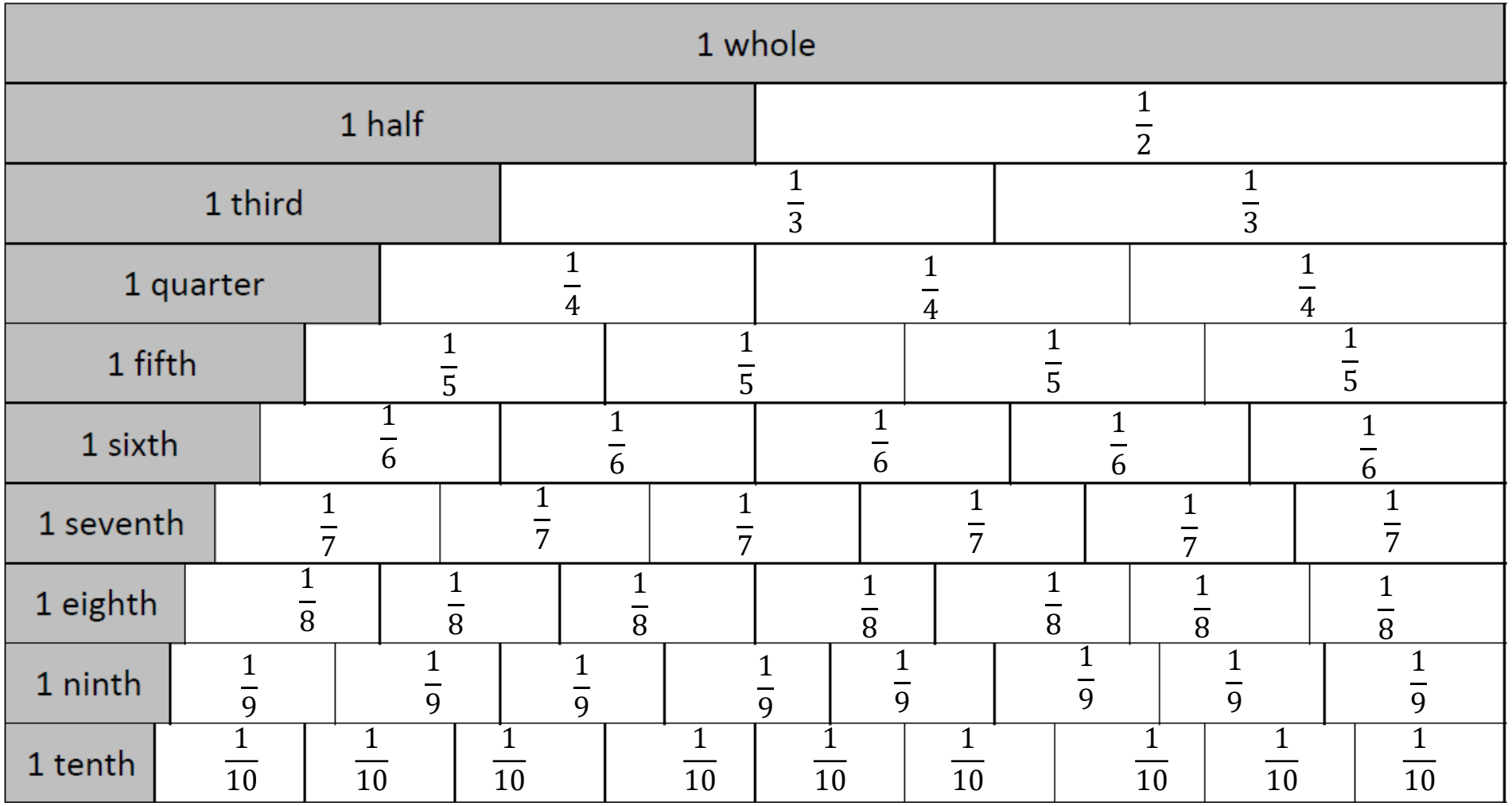


Look at the relative sizes of all the fractions,

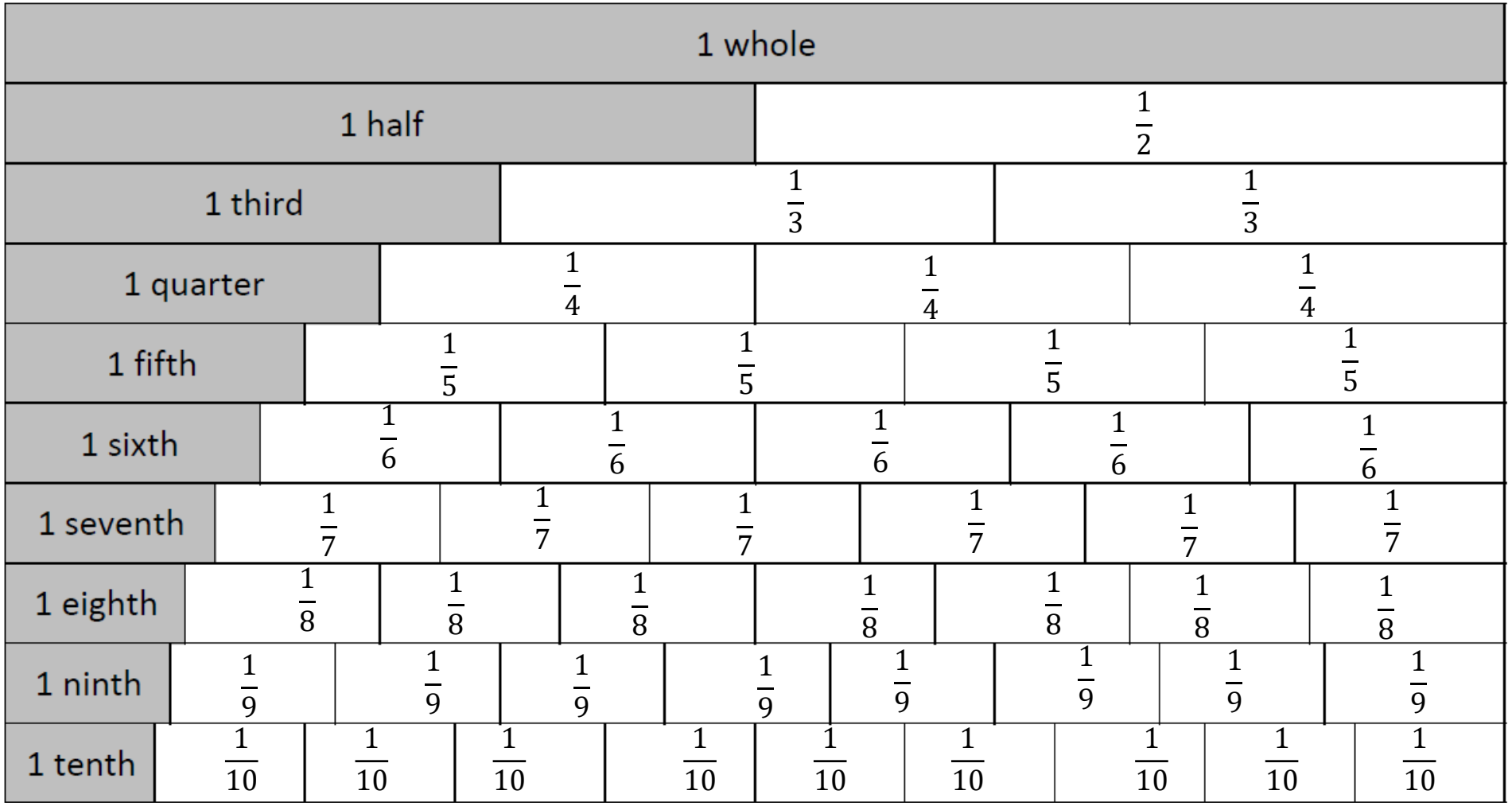


Key Questions

Look at the relative sizes of all the fractions,
Look at the size of 1 half compared to 1 third.
Now look at the size of 1 ninth compared to 1 tenth
What do you notice?



The bigger the denominator the smaller the smaller the size of the fraction

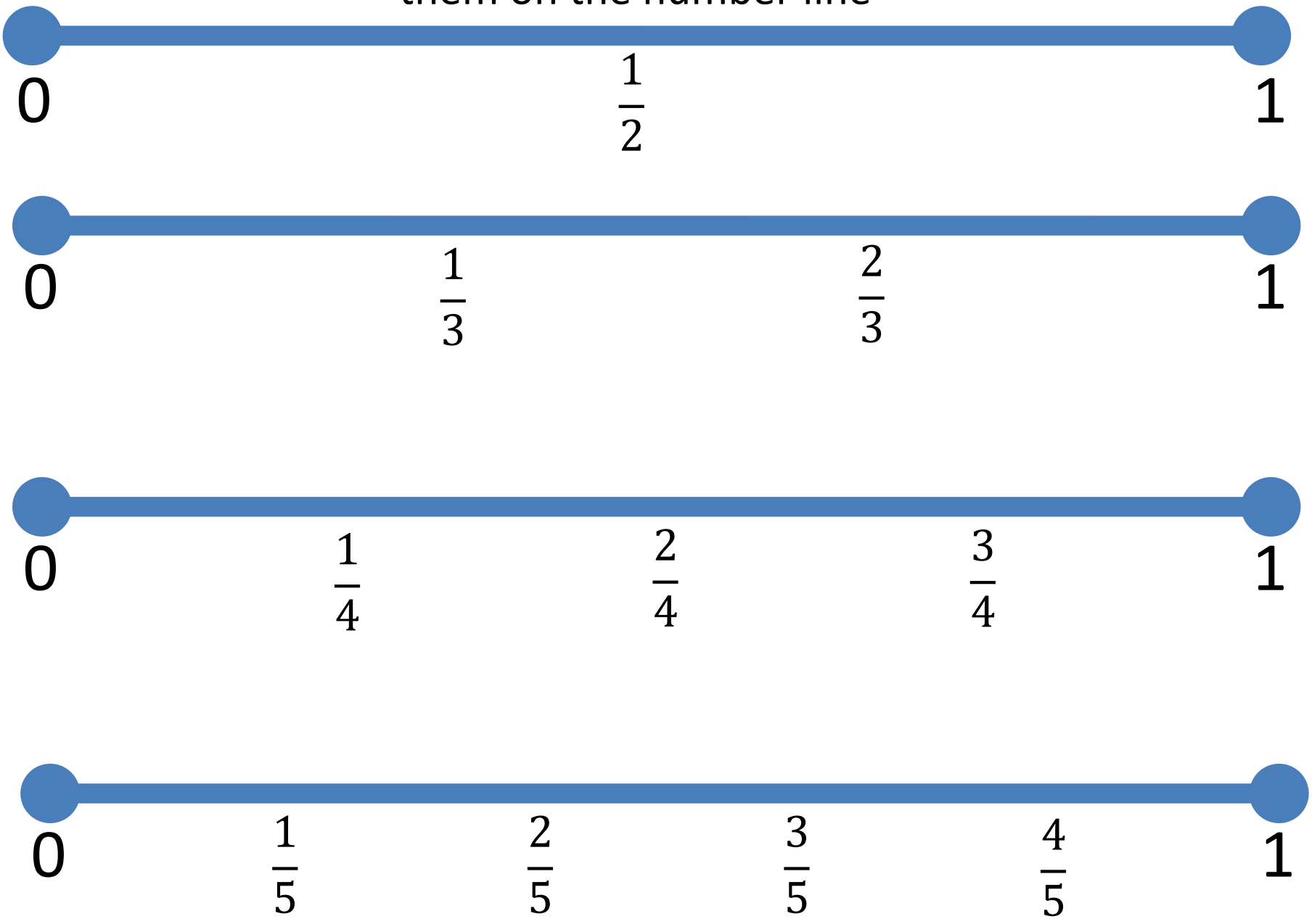


What is bigger $\frac{1}{20}$ **or** $\frac{1}{12}$

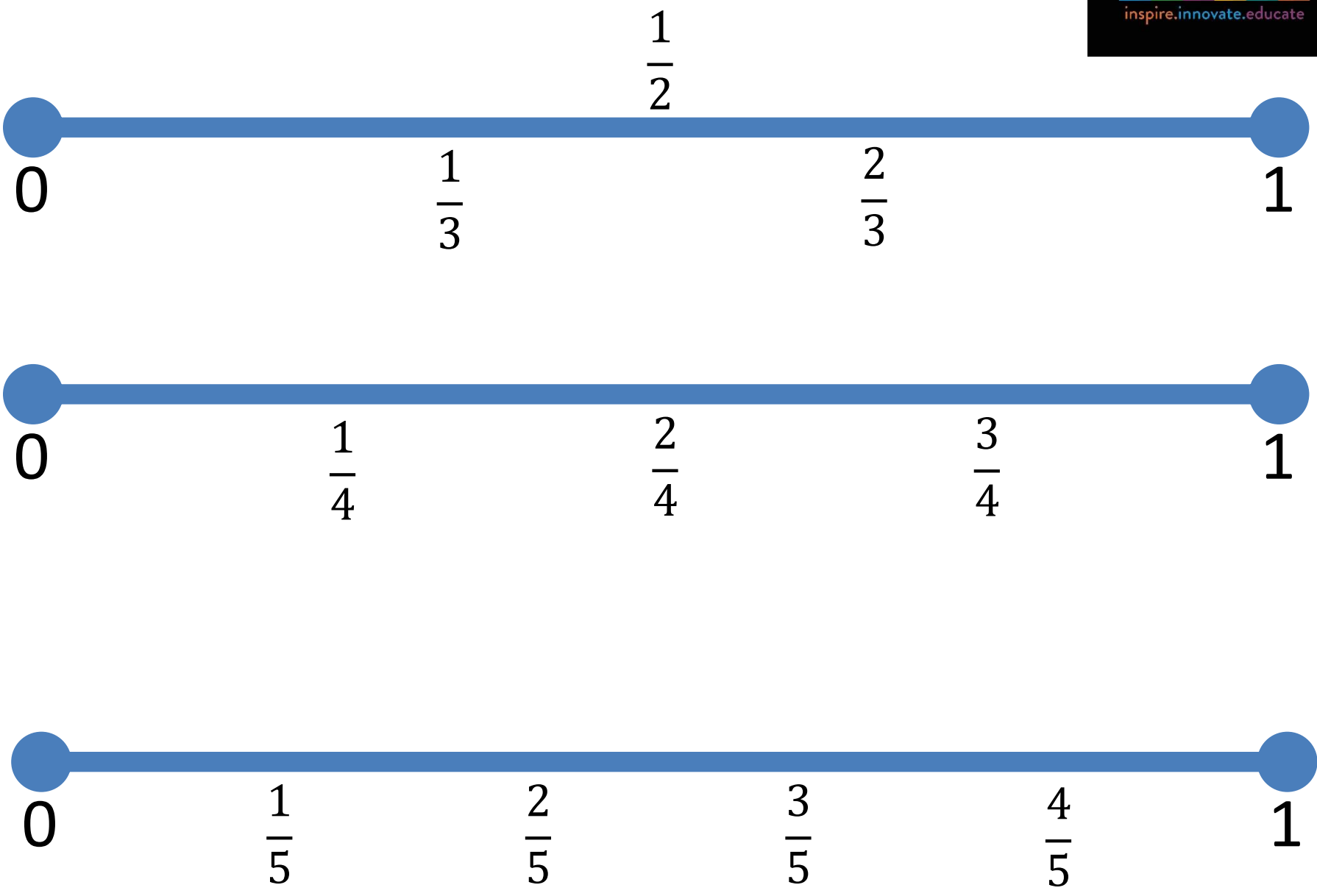
$\frac{1}{12}$ **is bigger than** $\frac{1}{20}$

Ordering fractions

Fractions are just numbers and we can put them on the number line



Ordering fractions



What fraction is shaded?

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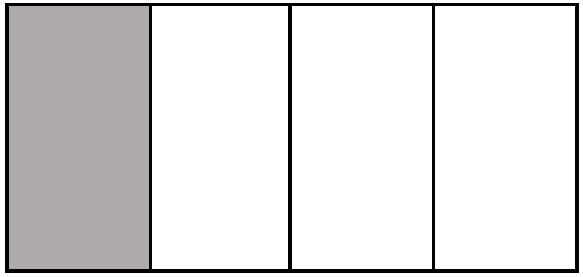

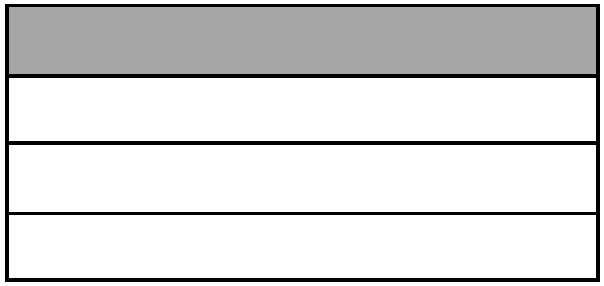

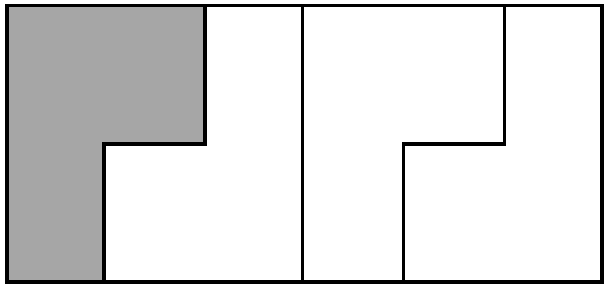

All of these shaded areas are the same size.

Equivalent fractions

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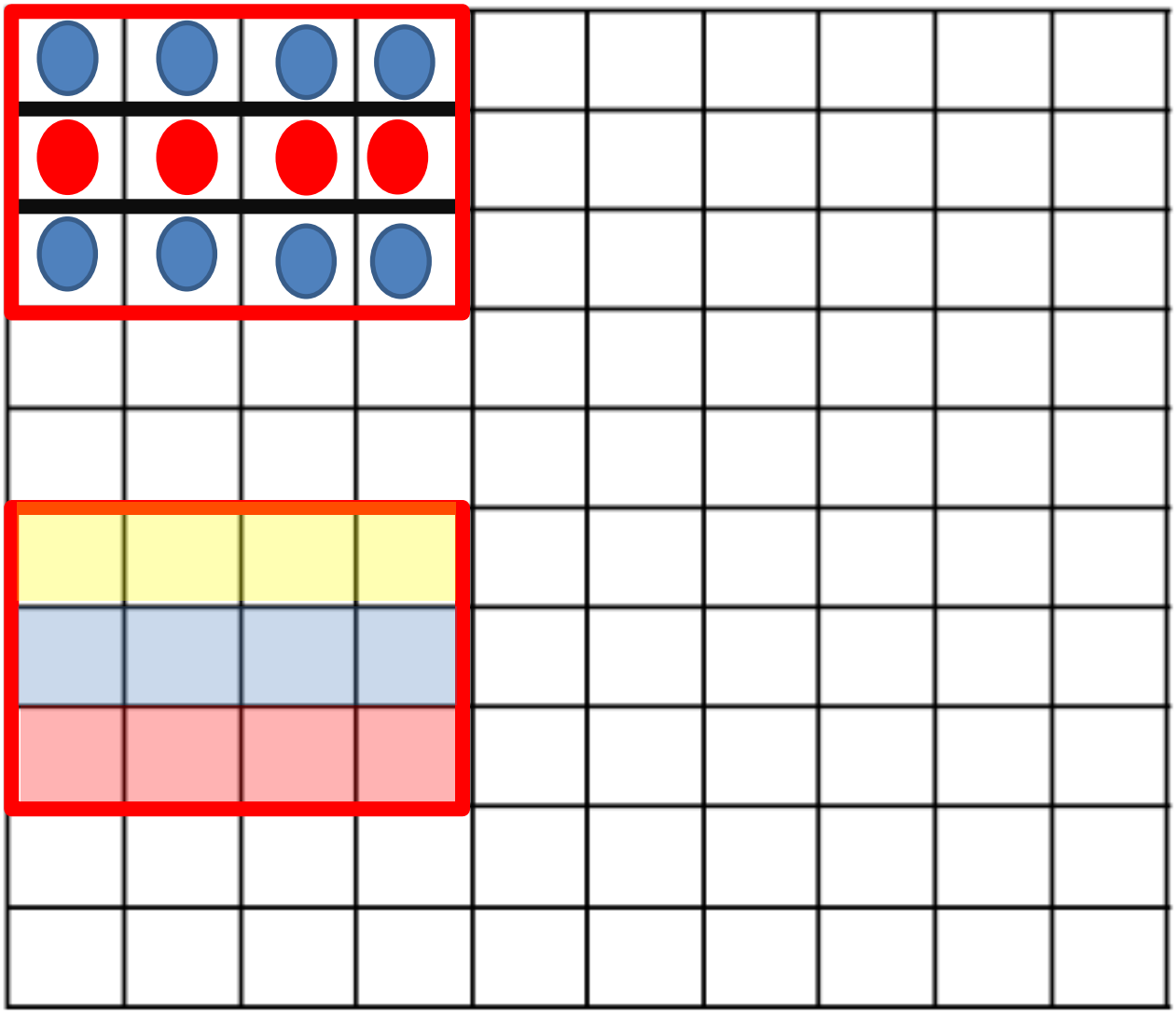
Equal fractions

Fractions that are the same

The Big Grid



$$\frac{4}{12} = \frac{1}{3}$$

$$\frac{8}{12} = \frac{2}{3}$$

$$\frac{12}{12} = \frac{3}{3} = 1$$

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36

x	1	2	3	4	5	6	7	8	9	10	11	12
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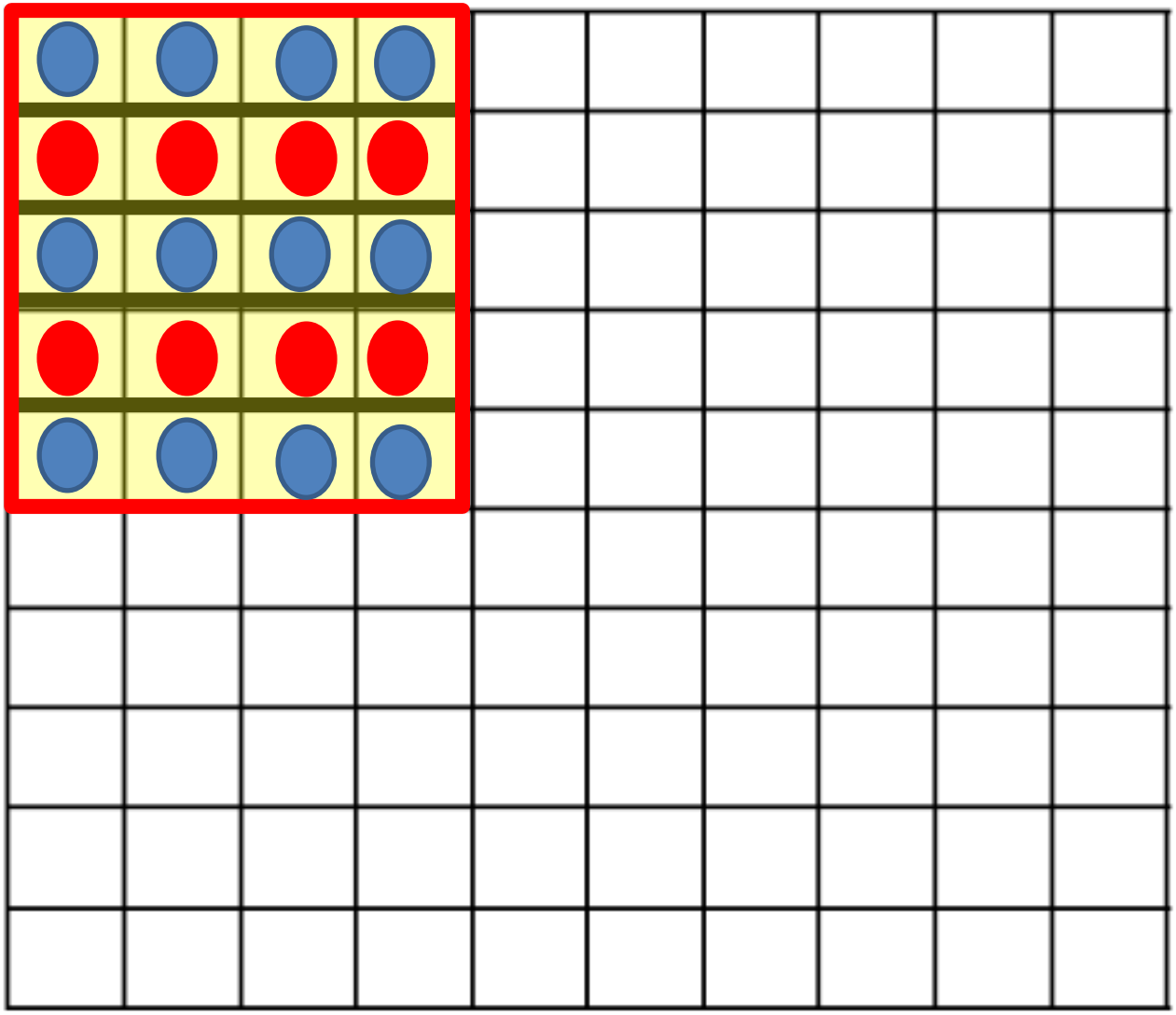
3	3	6	9	12	15	18	21	24	27	30	33	36

The Big Grid



$$\frac{4}{20} = \frac{1}{5}$$

$$\frac{8}{20} = \frac{2}{5}$$

$$\frac{12}{20} = \frac{3}{5}$$

$$\frac{16}{20} = \frac{4}{5}$$

$$\frac{20}{20} = \frac{5}{5} = 1$$

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
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4	4	8	12	16	20	24	28	32	36	40	44	48
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6	6	12	18	24	30	36	42	48	54	60	66	72
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8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
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11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

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6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
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6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
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12	12	24	36	48	60	72	84	96	108	120	132	144

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
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6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
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10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

TASK

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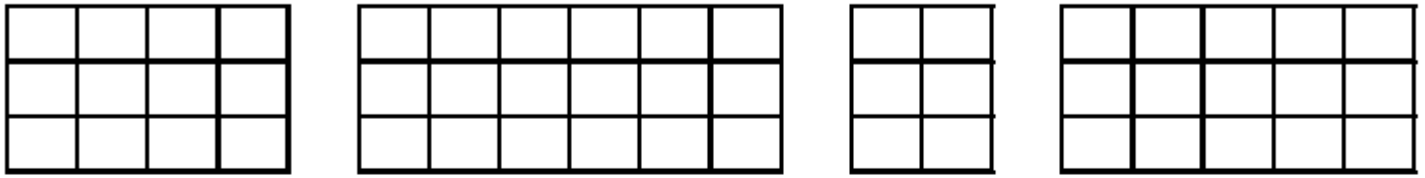
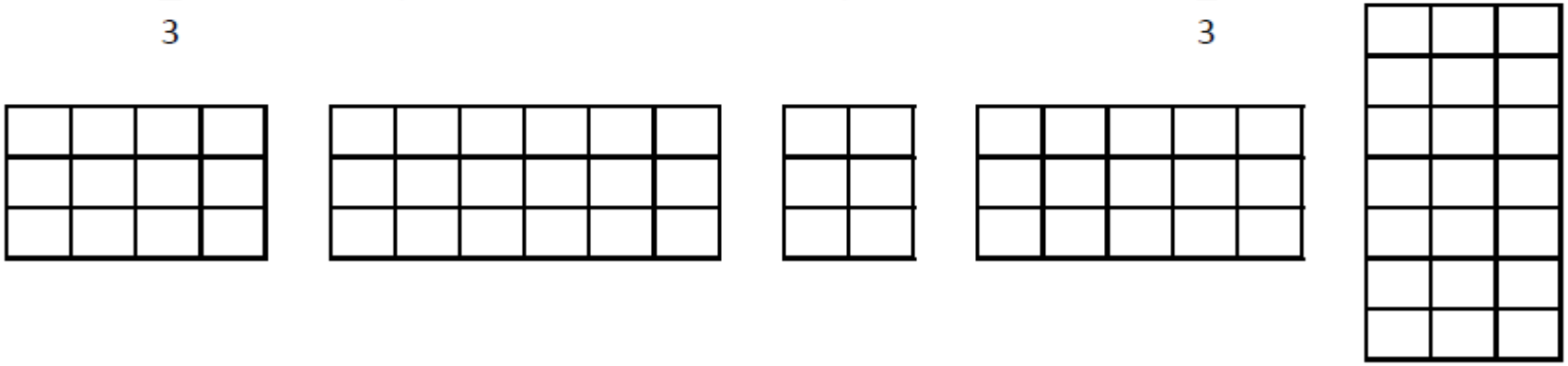
Shade $\frac{1}{3}$ of these shapes and write down some equivalent fractions for $\frac{1}{3}$



Shade $\frac{2}{3}$ of these shapes and write down some equivalent fractions for $\frac{2}{3}$



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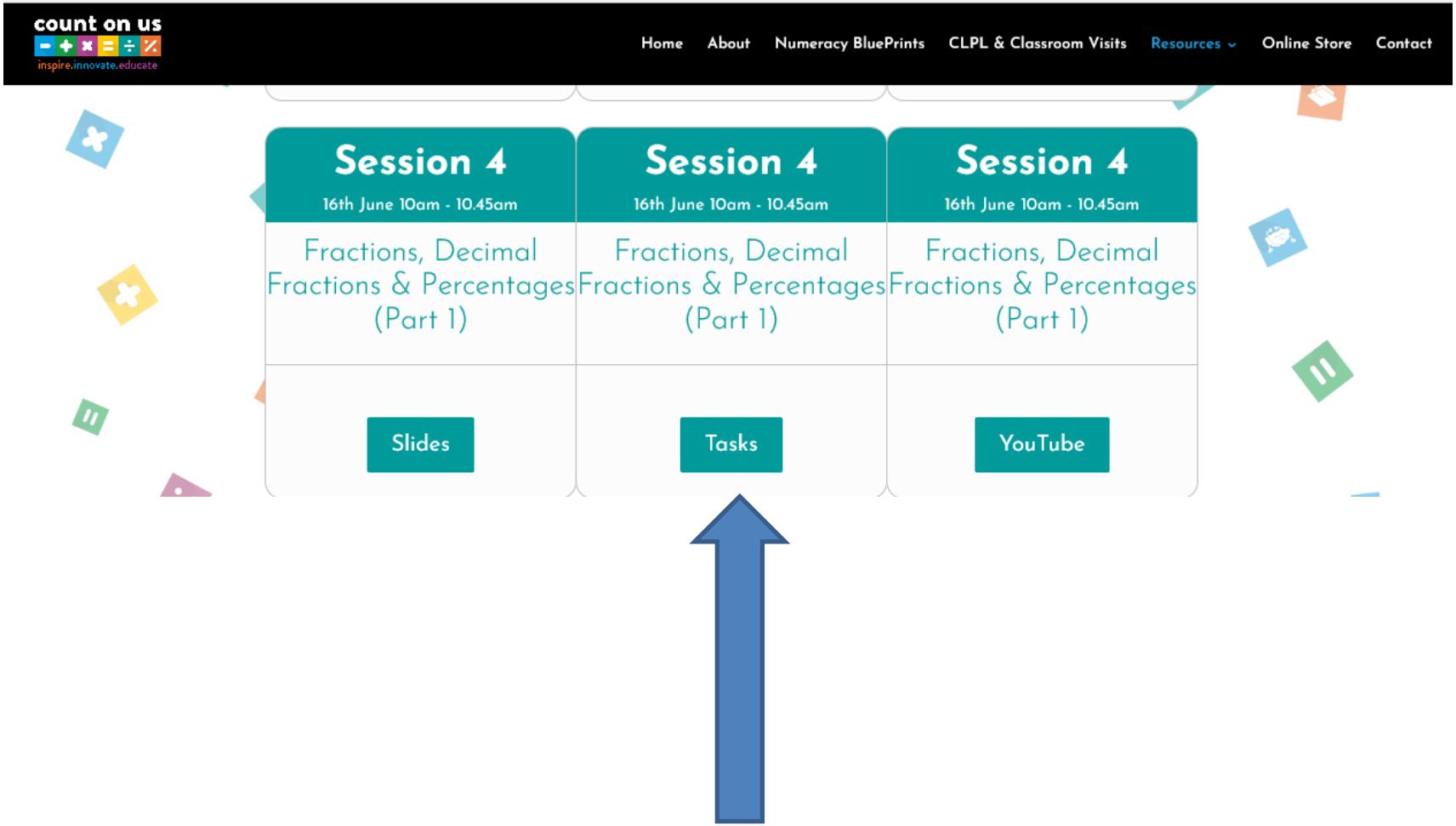


½ of 20

make a rectangle
with 20 boxes
(4 by 5 or 2 by 10)

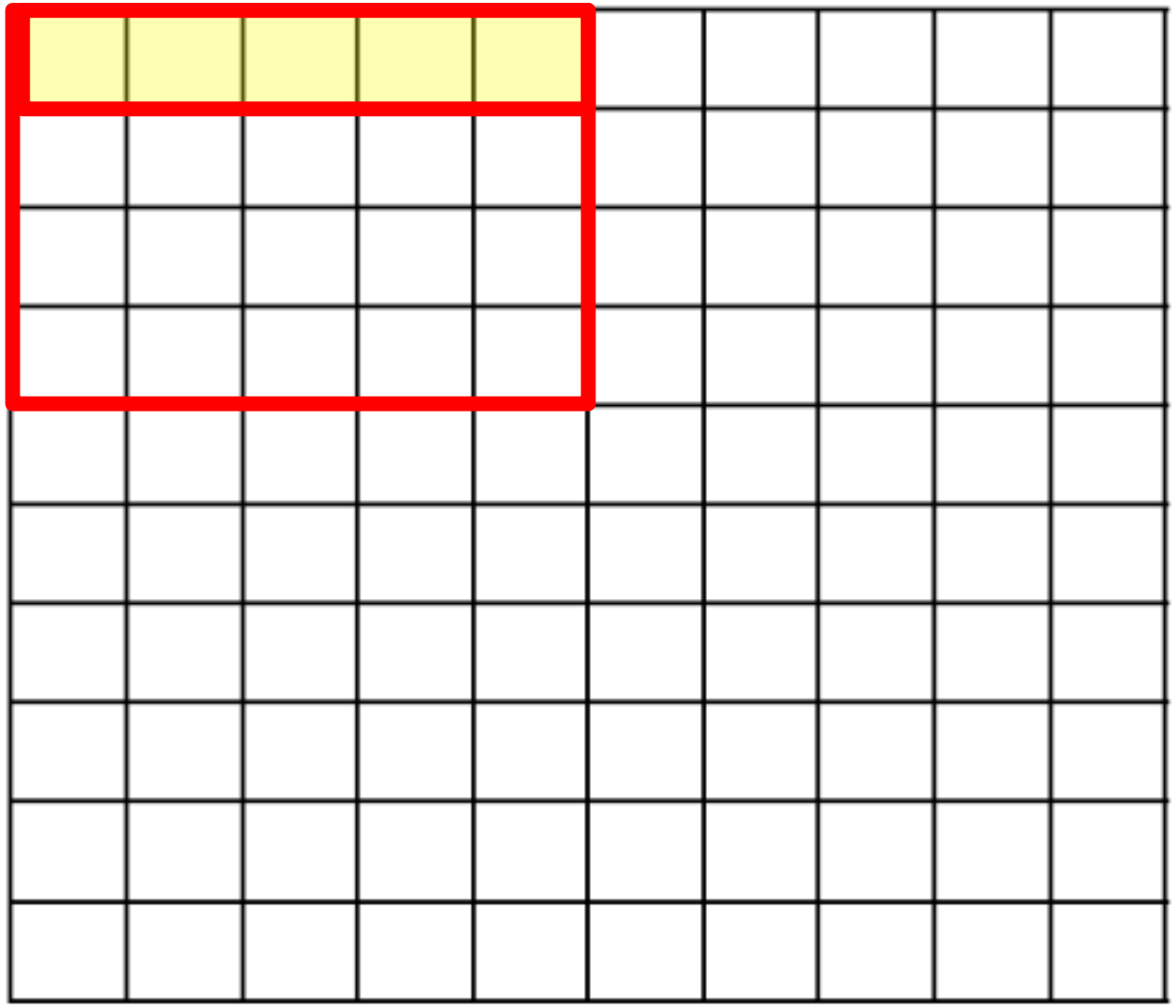
Shade ½ yellow

The yellow section is
10 boxes

20 ÷ 2 = 10

½ of 20 = 10

The Big Grid



$= \frac{1}{4}$ of 20

make a rectangle with 20 boxes (4 by 5)

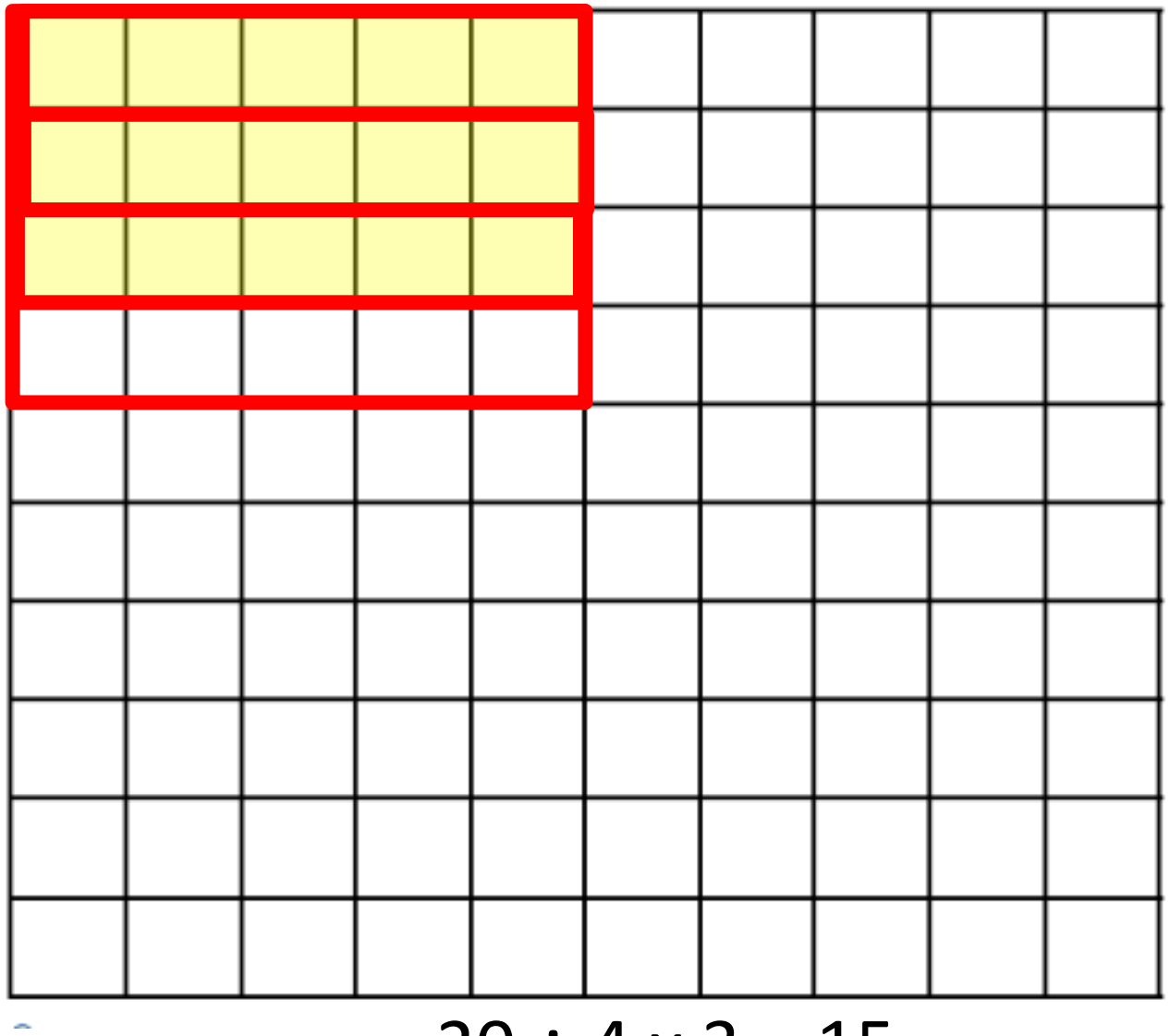
Shade ¼ yellow

The yellow section is 5 boxes

$\frac{1}{4}$ of 20 = 5

$20 \div 4 = 5$

The Big Grid



$= \frac{3}{4}$ of 20

make a rectangle with 20 boxes (4 by 5)

Shade ¾ yellow

The yellow section is 15 boxes

¾ of 20 = 15

20 ÷ 4 x 3 = 15

$\frac{1}{10}$ of 30

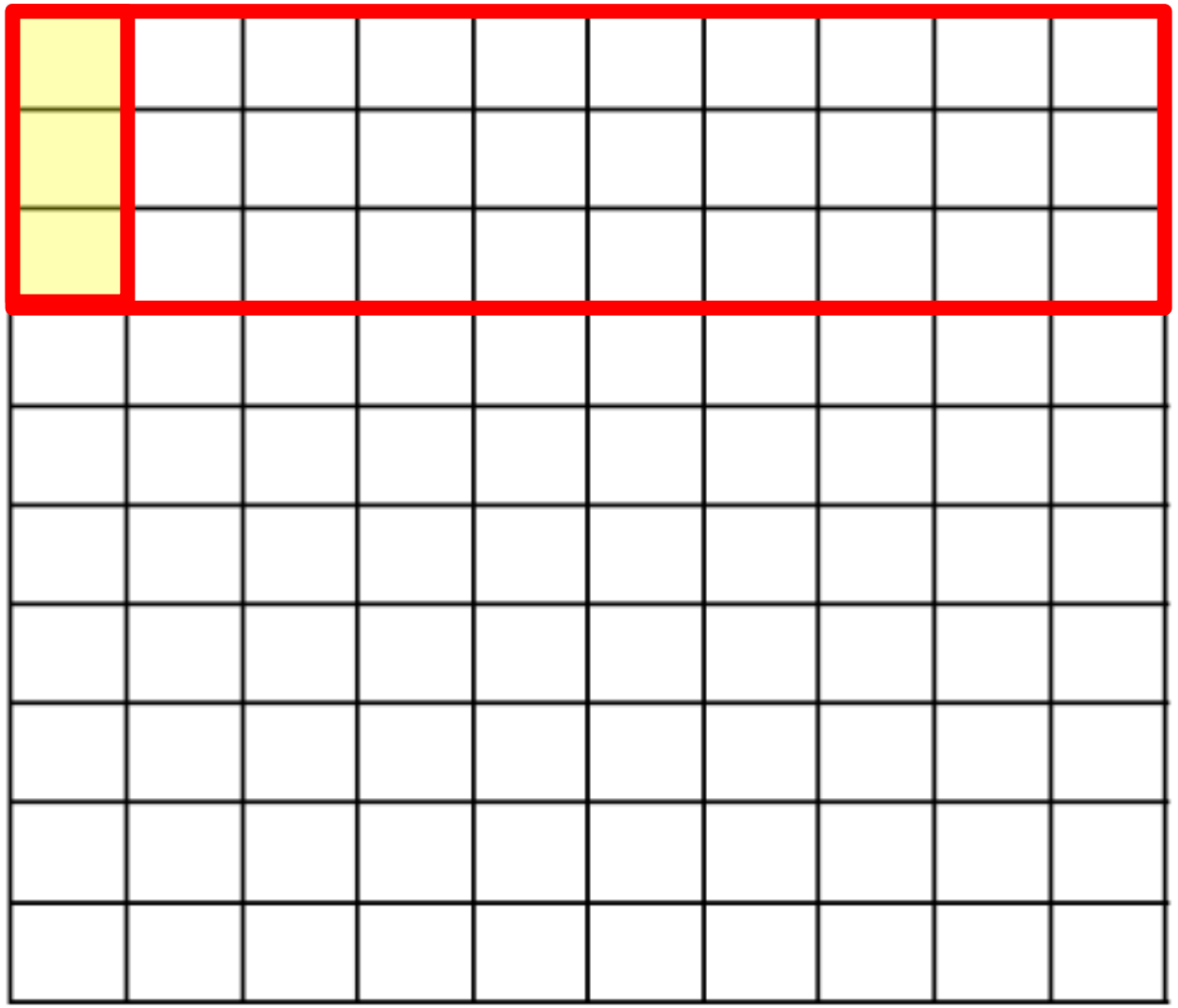
make a rectangle
with 30 boxes
(3 by 10)

Shade 1/10 yellow

The yellow section is
3 boxes

$\frac{1}{10}$ of 30 = 3

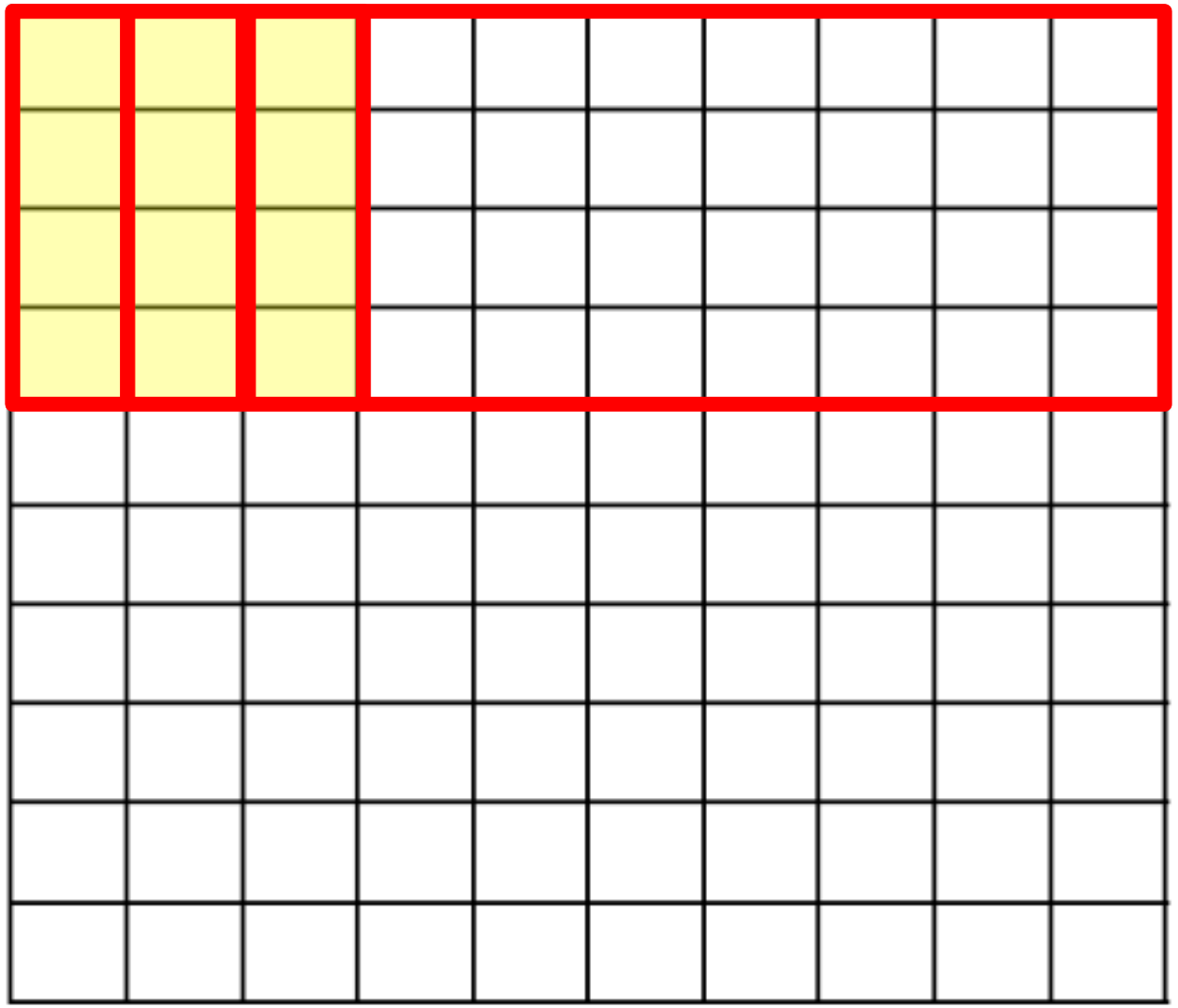
The Big Grid



30 ÷ 10 = 3

The Big Grid

$\frac{3}{10}$ of 40



make a rectangle with 40 boxes (4 by 10)

Shade 3/10 yellow

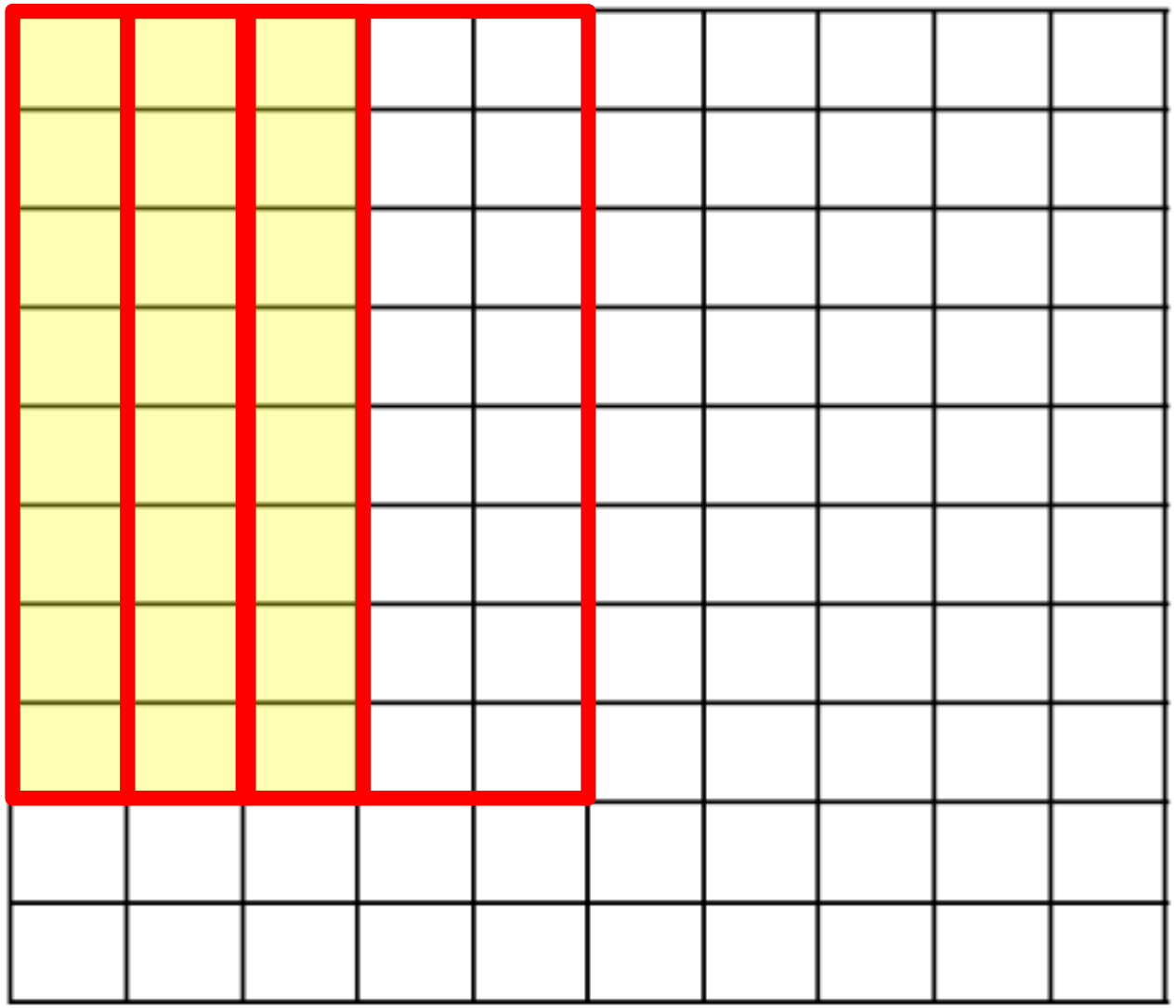
The yellow section is 12 boxes

$\frac{3}{10}$ of 40 = 12

40 ÷ 10 x 3 = 12

The Big Grid

$\frac{3}{5}$ of 40



make a rectangle with 40 boxes (5 by 8)

Shade 3/5 yellow

The yellow section is 24 boxes

$\frac{3}{5}$ of 40 = 24

40 ÷ 5 x 3 = 24

TASK

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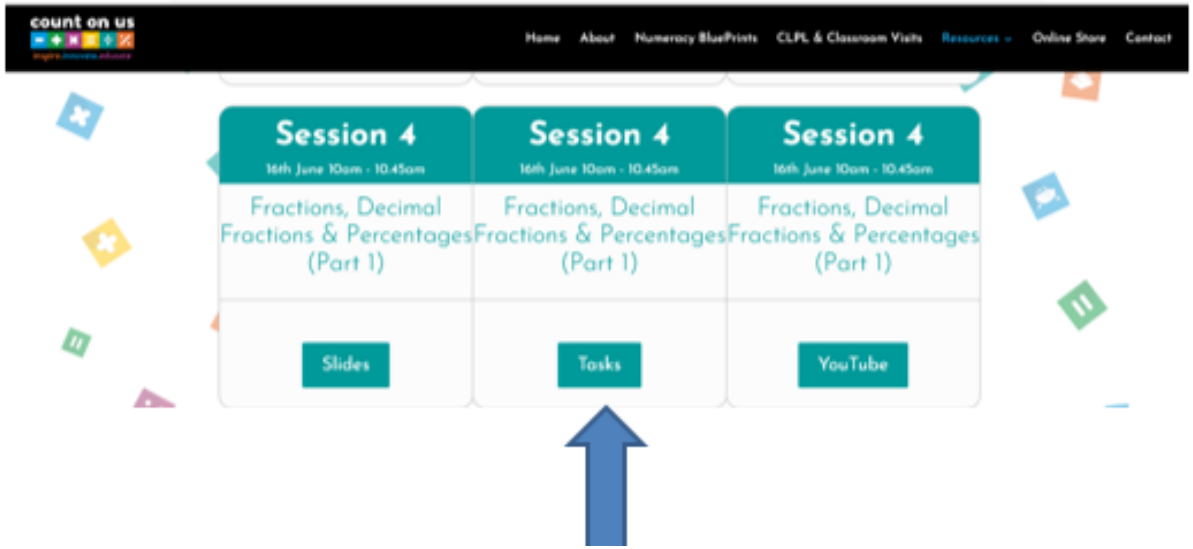

TASK 3:

Find

1). $\frac{1}{4}$ of 8 2). $\frac{1}{3}$ of 12 3). $\frac{1}{2}$ of 10 4). $\frac{1}{5}$ of 10 5). $\frac{1}{4}$ of 16

6). $\frac{1}{3}$ of 6 7). $\frac{1}{4}$ of 20 8). $\frac{1}{5}$ of 20 9). $\frac{1}{7}$ of 14 10). $\frac{1}{6}$ of 18

Put these fractions in order of size smallest to biggest

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$\frac{2}{3}$ $\frac{1}{12}$ $\frac{3}{7}$

Put these fractions in order of size smallest to biggest

count on us
inspire.innovate.educate

Shade $\frac{2}{3}$

Shade $\frac{1}{12}$

Shade $\frac{3}{7}$

Put these fractions in order of size smallest to biggest

count on us
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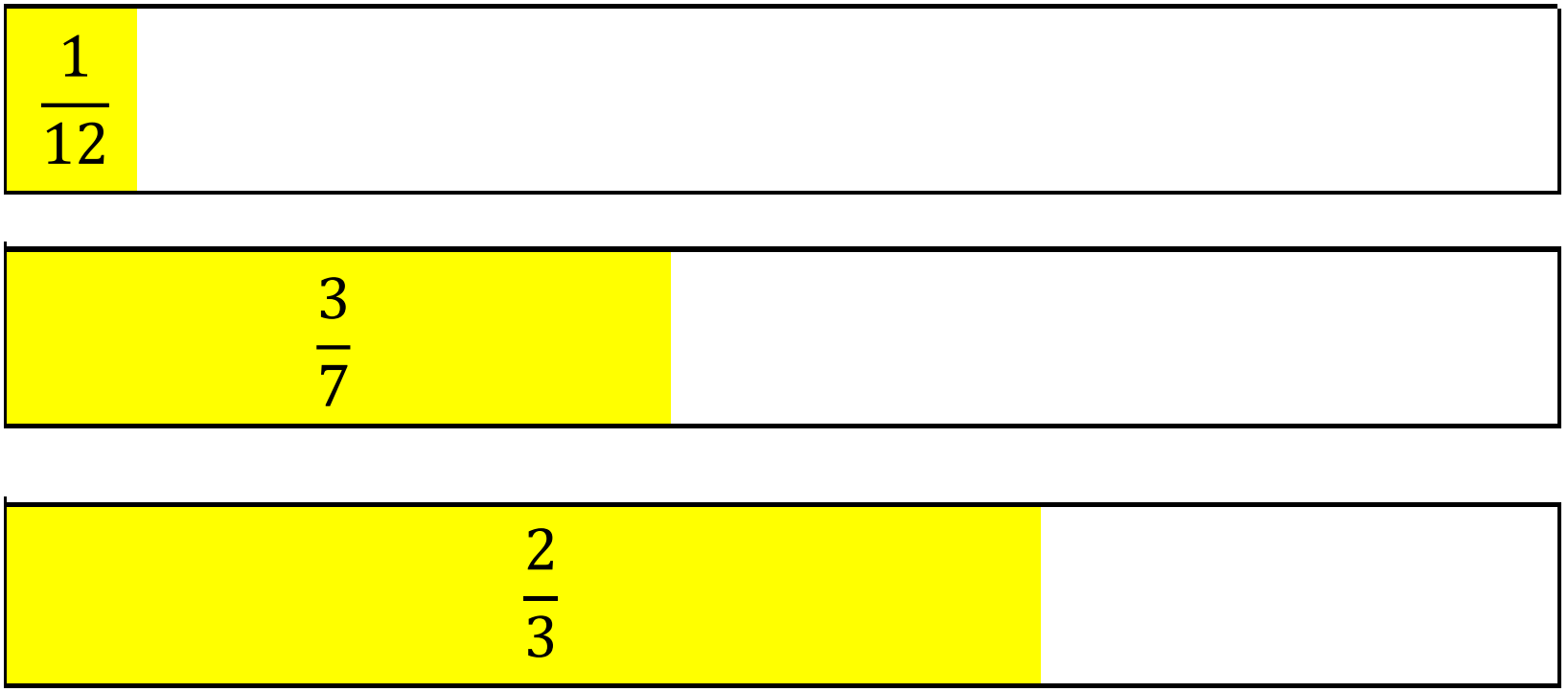
$\frac{2}{3}$ $\frac{1}{12}$ $\frac{3}{7}$



count on us
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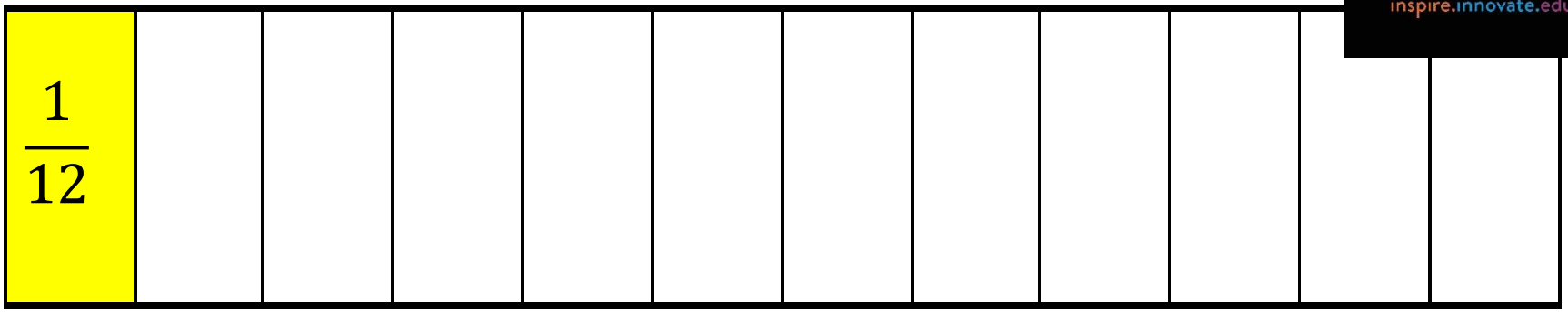

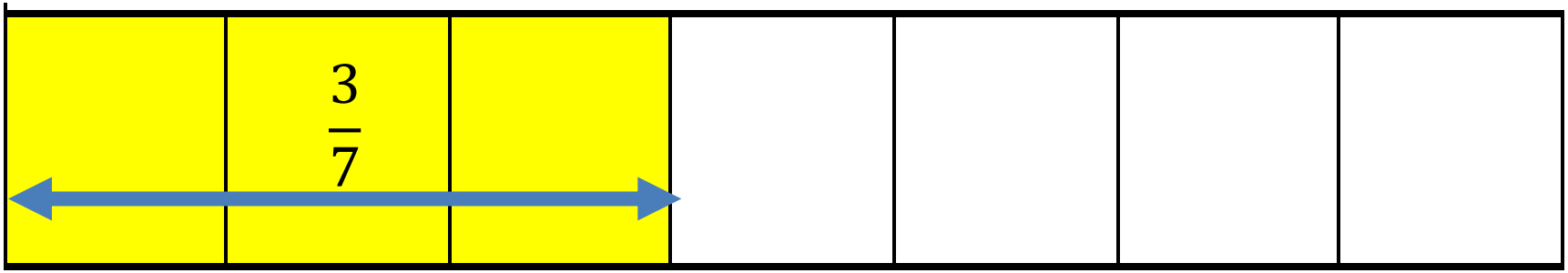

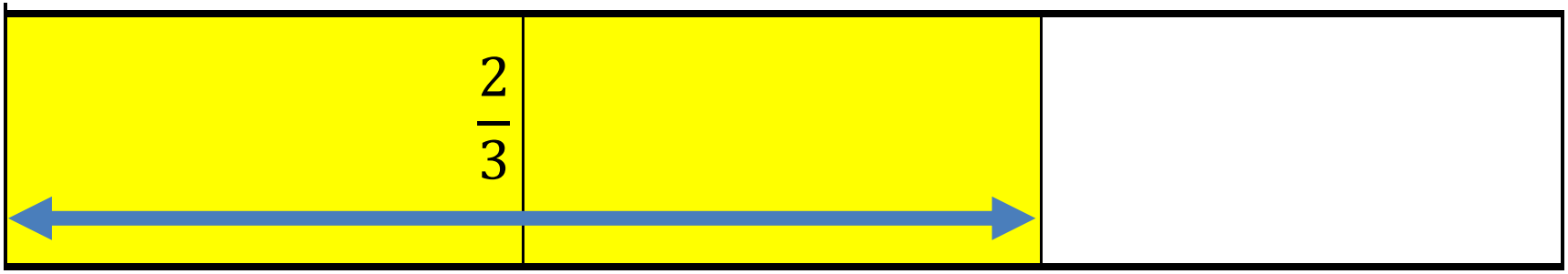

What fraction is bigger?

½ as a benchmark

$\frac{9}{16}$ or $\frac{11}{24}$

$\frac{1}{2} = \frac{8}{16} = \frac{12}{24}$

What fraction is bigger?

½ as a benchmark

$\frac{19}{40}$ or $\frac{11}{20}$

$\frac{1}{2} = \frac{20}{40} = \frac{10}{20}$

What fraction is bigger?

¼ as a benchmark

$\frac{5}{16}$ or $\frac{9}{40}$

$\frac{1}{4} = \frac{4}{16} = \frac{10}{40}$

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Slides and resources at

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Thank You!

To help us continue to represent parents views, understand yours and your child's experiences of maths and numeracy, and to continue to improve the delivery of these sessions, we would appreciate your feedback.

https://www.surveymonkey.co.uk/r/learningtogetherfeedback

With support from Education Scotland and Scottish Government, building on themes emerging from the 'Making Maths Count' Group report

Education Scotland Foghlam Alba

MAKING MATHS COUNT

Scottish Government Riaghaltas na h-Alba gov.scot

What are the big ideas with rational numbers?

Big Idea 1: Fractions are distinct numbers

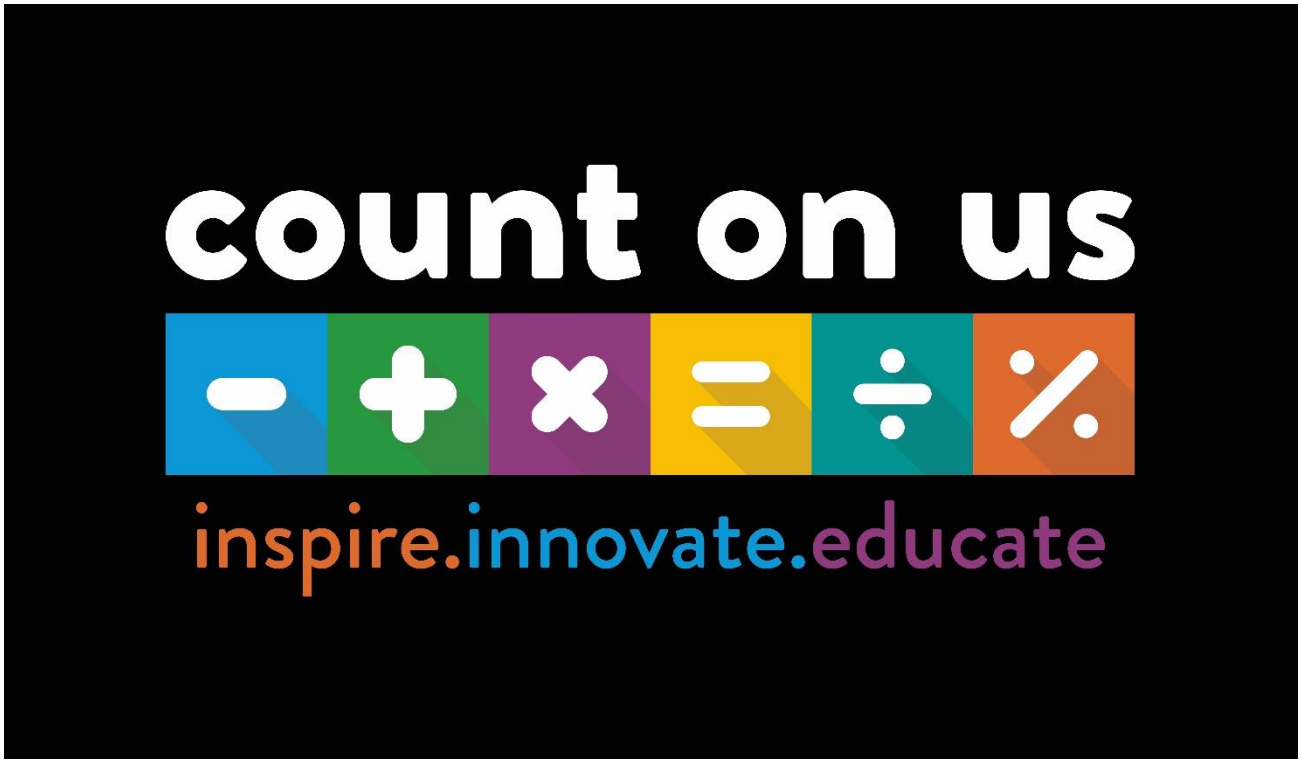
Big Idea 2: A fraction is part of a whole

Big Idea 3: The denominator is a divisor and tells how many equal parts the whole is divided into.

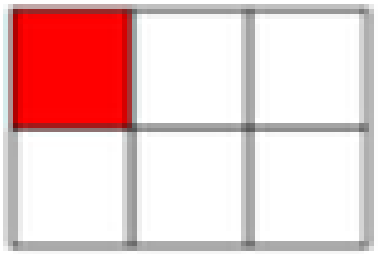
Big Idea 4: The numerator counts how many equal parts there are in the fraction.

Big Idea 5: There are an infinite number of fractions between any two given fractions.

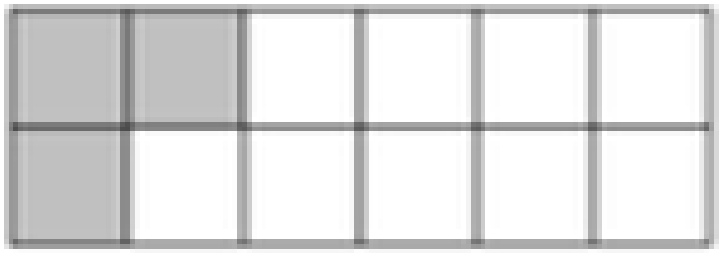
Big Idea 6: Equivalence means that a fraction can be repartitioned and renamed in an infinite



Extra examples

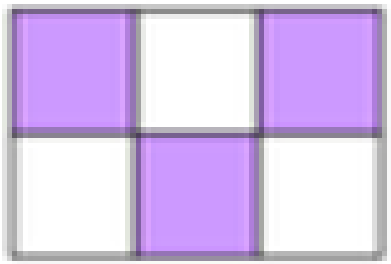


$\frac{1}{6}$

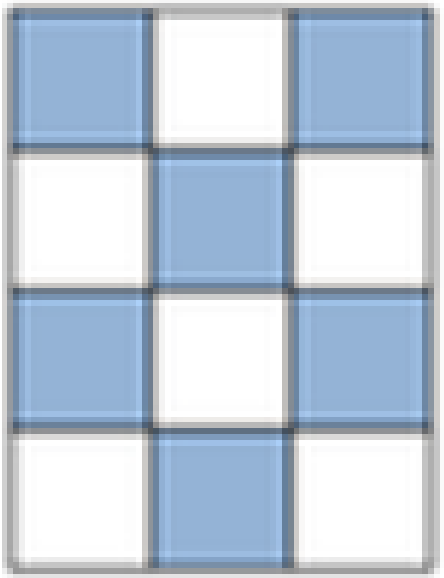


$\frac{3}{12}$

What fraction is shaded?

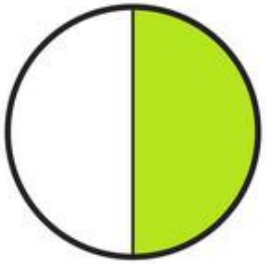


$\frac{3}{6}$



$\frac{6}{12}$

What fraction is shaded?

Q1  =

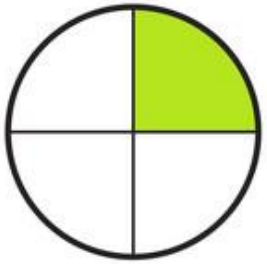
Q2 =

Q3 =

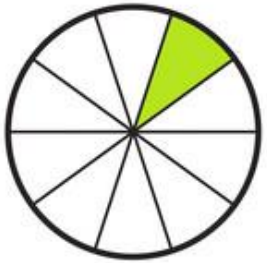
Q4 =

Q5 =

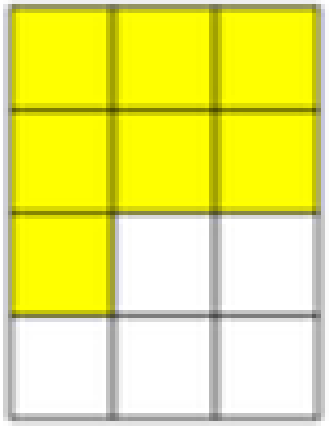
Q6 =

Q7  =

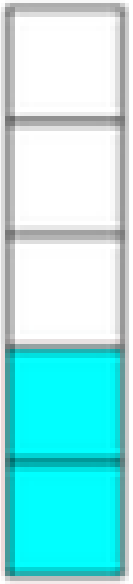
Q8 =

Q9  =

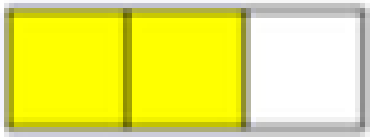
What fraction of the whole is the shaded area in these drawings?



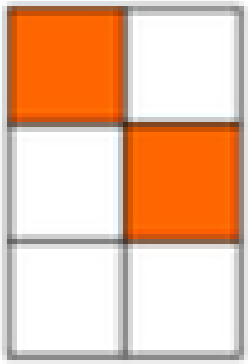
$\frac{7}{12}$

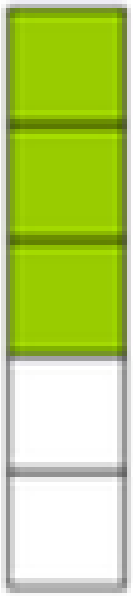


$\frac{2}{5}$



$\frac{2}{3}$



$\frac{2}{6}$

$\frac{3}{5}$