LO: I understand the place value of decimals (- a reminder (10th/100th/1000th etc))

lesson 1

Success criteria

Understand place value of decimals

Order decimals - ascending and descending

Timestable ping-pong!

LO: I am learning to understand the place value of decimals - a reminder (10th/100th/1000th etc)

Finish this sentence - making sure spellings are correct for both place value and digit value.

3.678 is made up of....

Answer: 3.678 is made up of three units, six tenths, seven hundredths and eight thousandths.

Answer

Which 3 digit is worth the most? How do you know?

*	**
21.3	21.345
56.03	56.038
44.532	44.532267
276.173	276.1734712

Question

How can you use place value columns to help you **compare** these numbers?

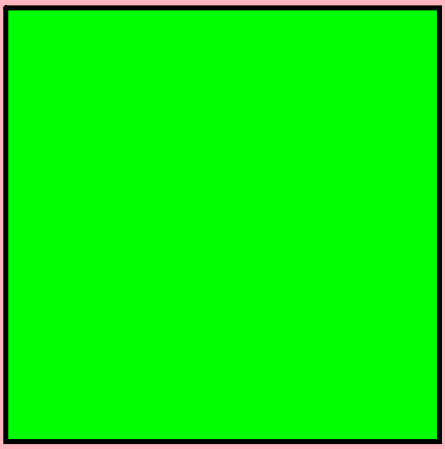
Put these in **ascending** order. What strategies can you use?

How can you use place value columns to help you **compare** these numbers?

Question

*	**	**	**
21.3	4521.3	21.123	4521.123
21.323	4521.323	21.2568	4521.2568
21.123	4521.123	21.3	4521.3
21.7	4521.7	21.323	4521.323
21.2568	4521.2568	21.7	4521.7

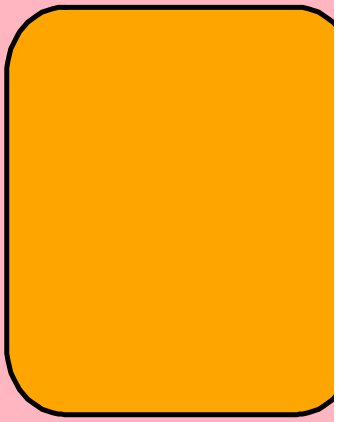
Answers



Put these in **descending** order. What strategies can you use? How can you use place value columns to help you **compare** these numbers?

*	**	*	**
4.65	4.654	4.97	4.974
4.85	4.854	4.95	4.954
4.95	4.954	4.85	4.854
4.29	4.294	4.65	4.654
4.97	4.974	4.29	4.294

Why was 2 star not really any harder than star?



Put all the numbers on this page in **ascending** order.

What tactics could you use?

Bonus challenge: Find the mean of all the numbers and email your teacher your prosed answer

22.412

22.02

21.999

21.8

22.901

25.909

23.012

23.007

20.9

21.51287

Answers

20.9
21.51287
21.8
21.999
22.02
22.412
22.901
23.007
23.012
25.909

Year 5

45 x 23 =

9,832 ÷ 13 = (with remainder)

1/8 + 3/4 =

1/8 x 3/4 =

3/4 - 1/8 =

3/4 ÷ 1/8 =

13/4 = (as a mixed number)

234 x 42 =

47,129 ÷ 25 = (with remainder)

23 + 7 x 8 =

32 x 36 =

7,821 ÷ 14 = (with remainder)

1/12 + 5/6 =

2/5 x 11/14 =

3/5 - 1/20 =

9/10 ÷ 8 =

36/5 = (as a mixed number)

456 x 29 =

34,789 ÷ 25 = (with remainder)

23 + 40 ÷ 8 =

Bonus

Write your 19.5 timestable

(keep going until you get to 1950).

lesson 2

Year 6

454 x 23 =

349,832 ÷ 13 = (decimal 3dp)

7/12 + 3/4 =

7/12 x 3/4 =

3/4 - 7/12 =

3/4 ÷ 7/12 =

54/4 = (as a mixed number)

234 x 422 =

3,247,129 ÷ 25 =

23 + 7 x 22 =

325 x 36 =

7,821 ÷ 14 = (to 3 dp)

1/36 + 5/6 =

12/25 x 11/14 =

3/5 - 1/20 + 3/10 =

9/10 ÷ 18 =

136/5 = (as a mixed number)

3,456 x 29 =

34,789 ÷ 25 = (2 dp)

723 + 400 ÷ 8 =

Year 5

45 x 23 = 1,035

9,832 ÷ 13 = 756 r 4

1/8 + 3/4 = 7/8

1/8 x 3/4 = 3/32

3/4 - 1/8 = 5/8

3/4 ÷ 1/8 = 24/4 = 6

13/4 = 3 1/4 (as a mixed number)

234 x 42 = 9,828

47,129 ÷ 25 = 1,885 r 4

23 + 7 x 8 = 79

32 x 36 = 736

7,821 ÷ 14 = 558 r 9

1/12 + 5/6 = 11/12

2/5 x 11/14 = 22/70 =11/35

3/5 - 1/20 = 11/20

9/10 ÷ 8 = 9/80

36/5 = 7 1/5 (as a mixed number)

456 x 29 = 13,224

34,789 ÷ 25 = 1,391 r 14

23 + 40 ÷ 8 = 28

Bonus

Write your 19.5 timestable

(keep going until you get to 1950).

Year 6

454 x 23 = 10,442

349,832 ÷ 13 = 26,910.153

7/12 + 3/4 = 16/12 =1 4/12 = 11/3

7/12 x 3/4 = 21/48 = 7/16

3/4 - 7/12 = 2/12 = 1/6

3/4 ÷ 7/12 = 36/28 = 1 8/28 = 1 2/7

54/4 = 131/2 (as a mixed number)

234 x 422 = 98,748

3,247,129 ÷ 25 = 129,885.16

23 + 7 x 22 = 177

325 x 36 = 11,700

7,821 ÷ 14 = 558.642 (to 3 dp)

1/36 + 5/6 = 31/36

12/25 x 11/14 = 132/350 = 66/175

3/5 - 1/20 + 3/10 = 17/20

9/10 ÷ 18 = 9/180 = 1/20

136/5 = 27 1/5 (as a mixed number)

3,456 x 29 = 100,224

34,789 ÷ 25 = 1,391.56 (2dp)

723 + 400 ÷ 8 = 773

LO: I know that percent means out of 100

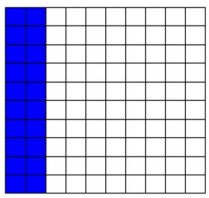
lesson 3

Per = out of

cent = 100

Percent

- What does it mean??
  - "out of 100"
  - Ex: 20 out of 100 or 20% or 20 or 0.20



100

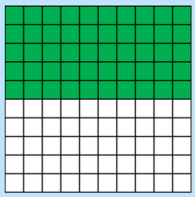
"of" means x

Timestable ping-pong!

What is a percentage?

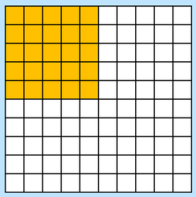
"Percent" means "out of 100". A percentage is another way of expressing a fractional quantity.

Here are some grid split into 100 parts:



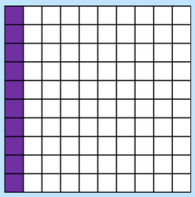
50 out of 100 (50%) are shaded.

$\frac{50}{100} = \frac{1}{2}$



25 out of 100 (25%) are shaded.

$\frac{25}{100} = \frac{1}{4}$



10 out of 100 (10%) are shaded.

$\frac{10}{100} = \frac{1}{10}$

What percent of these 100 squares are coloured in?

Answers

Questions

70/100 = %

23/100 = %

35/100 = %

96/100 = %

22/50 = %

19/50 = %

3/25 = %

10/25 = %

24/25 = %

8/10 = %

3/10 = %

2/5 = %

4/5 = %

3/4 = %

***

1/8 = %

3/8 = %

7/8 = %

Questions

70/100 = 70%

23/100 = 23%

35/100 = 35%

96/100 = 96%

22/50 = 44%

19/50 = 38%

3/25 = 12%

10/25 = 40%

24/25 = 96%

8/10 = 80%

3/10 = 30%

2/5 = 40%

4/5 = 80%

3/4 = 75%

***

1/8 = 12.5%

3/8 = 37.5%

7/8 = 87.5%

Percent to fractions Questions

77% =

34% =

20% =

91% =

23% =

54% =

75% =

12% =

**

156% =

271% =

599% =

613% =

Percent to fractions Answers

77% = 77/100

34% = 34/100 = 17/50

20% = 20/100 = 2/10=1/5

91% = 91/100

23% = 23/100

54% = 54/100 = 27/50

75% = 75/100 = 3/4

12% = 12/100 = 6/50 = 3/25

**

156% = 1 56/100 = 1 28/50 = 1 14/25

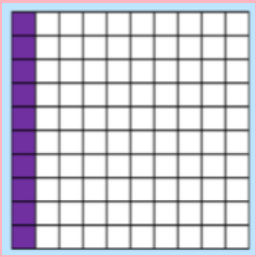
271% = 2 71/100

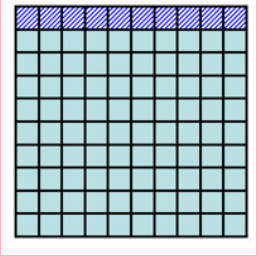
599% = 5 99/100

613% = 6 13/100

Task 1: Why can we say that for each image here, 10% of it is coloured in? Explain fully

*





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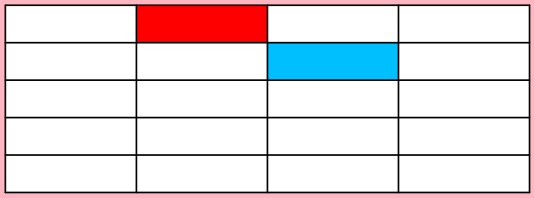


Task 2: Draw 4 images which represent 25%.
The previous slide may help your thinking

Extension: Draw 4 images which represent 62.5%.

The previous slide may help your thinking

L.O: To find percentages of amounts

lesson 4

Resources

Extension % of amounts.docx

(GD) Increase-Decrease percentage.docx

Success Criteria

- To find 10% divide the number by ten.
- To find 20% find 10% and double it.
- To find 50% half it.
- To find 25% half it, and half it again.
- To find 75%, find 50% and add 25%
- To find 5% find 10% and half it.
- To find 1% divide by 100.

Starter: Divide by 100

2,500 ÷ 100 =

250 ÷ 100 =

25 ÷ 100 =

8,700 ÷ 100 =

351 ÷ 100 =

450 ÷ 100 =

19 ÷ 100 =

8 ÷ 100 =

Bonus: Divide by 1,000,000

Answers Divide by 100

2,500 ÷ 100 = 25

250 ÷ 100 = 2.5

25 ÷ 100 = 0.25

8,700 ÷ 100 = 87

351 ÷ 100 = 3.51

450 ÷ 100 = 4.5

19 ÷ 100 = 0.19

8 ÷ 100 = 0.08

Answers divide by 1,000,000

2,500 ÷ 1,000,000 = 0.0025

250 ÷ 1,000,000 = 0.00025

25 ÷ 1,000,000 = 0.000025

8,700 ÷ 1,000,000 = 0.0087

351 ÷ 1,000,000 = 0.000351

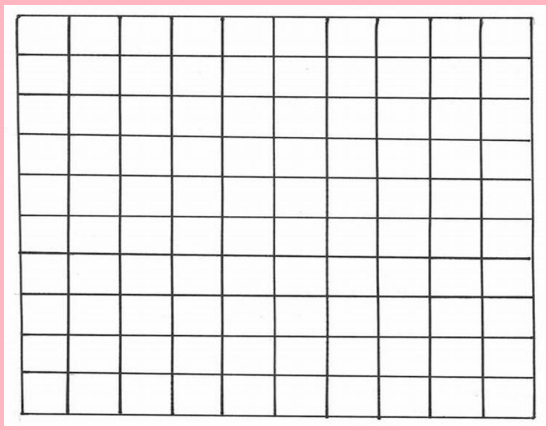
450 ÷ 1,000,000 = 0.00045

19 ÷ 1,000,000= 0.000019

8 ÷ 1,000,000 = 0.000008

The rules

- To find 10% divide the number by ten. → Why? Use the 100 square or image below to explain. Why is 10% of 100. 100 divided by 10?
- To find 20% find 10% and double it...or
- To find 50% half it. → Why?
- To find 25% half it, and half it again....or
- To find 75%, find 50% and add 25%
- To find 5% find 10% and half it. → or...
- To find 1% divide by 100. → Why? Use the 100 square to explain



10%	10%	10%	10%	10%	10%	10%	10%	10%	10%

10 lots of 10% = 100%

5 %	5 %	5 %	5 %	5 %	5 %	5 %	5 %	5 %	5 %	5 %	5 %	5 %	5 %	5 %	5 %	5 %	5 %	5 %	5 %

20 lots of 5% = 100%

60

10% =

20% =

50% =

25% =

75% =

5% =

1% =

- To find 10% divide the number by ten.
- To find 20% find 10% and double it.
- To find 50% half it.
- To find 25% half it, and half it again.
- To find 75%, find 50% and add 25%
- To find 5% find 10% and half it.
- To find 1% divide by 100.

Bonus work

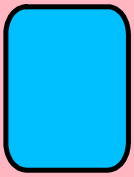
How could you find the following:

21% = 12.6

39% = 23.4

2% = 1.2

77% = 46.2



Start from the beginning, if you are confident push yourself to finish everything without making any silly mistakes.

*

1)15% of 200

2) 25% x 160

3) 35% of 120

4) 55% x 240

5) 15% of 60

6) 45% of 80

**

7) 80% x 110

8) 90% of 70

9) 15% x 320

10) 25% of 250

11) 30% of 670

12) 15% x 340

***

13) 81% x 110

14) 89% of 70

15) 17% x 320

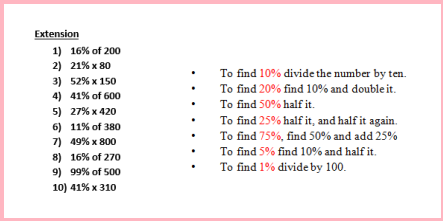
16) 23% of 250

17) 33% of 670

18) 13% x 340

If completed without mistakes, attempted these questions

Extension % of amounts.docx



Extension

1) 16% of 200
2) 21% x 80
3) 52% x 150
4) 41% of 600
5) 27% x 420
6) 11% of 380
7) 49% x 800
8) 16% of 270
9) 99% of 500
10) 41% x 310

- To find 10% divide the number by ten.
- To find 20% find 10% and double it.
- To find 50% half it.
- To find 25% half it, and half it again.
- To find 75%, find 50% and add 25%
- To find 5% find 10% and half it.
- To find 1% divide by 100.

Answers and discussion

*	**	***
1) 30	7) 88	13) 89.1
2) 40	8) 63	14) 62.3
3) 42	9) 48	15) 54.4
4) 132	10) 62.5	16) 57.5
5) 9	11) 201	17) 221.1
6) 36	12) 51	18) 44.2

If completed without mistakes, attempted these questions

Extension % of amounts.docx

Increase and decrease by a percentage

350 increased by 10% = ?

350 decreased by 10% = ?

Now complete the task

(GD) Increase-Decrease percentage.docx

Percentage increase: Find the percentage of the amount and then add it on to the original amount.

a) Increase £200 by 50%

b) Increase 450cm by 25%

c) Increase 30 kg by 70%

d) Increase 200 miles by 48%

Percentage decrease: Find the percentage of the amount and then subtract this from the original amount.

a) Decrease 370cm by 10%

b) Decrease £850 by 20%

c) Decrease 160g by 45%

d) Decrease 47km by 30%

L.O: I am learning to convert decimals to percentages.

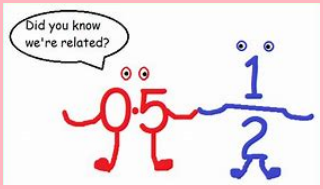
Lesson 5

I promise you will be able to do this easily by the end of the lesson. Trust me, you will!

Yr 5.6 WB 18.1.21 Maths lesson 5 Timestable starter challenges .pdf

Decimals and percentages are easily relatable, they can be translated effortlessly.

They are good friends - you could even call them twins that just look different.



←

Starter: Choose a timetable task. Check answers on a calculator where needed

Yr 5.6 WB 18.1.21 Maths lesson 5 Timestable starter challenges .pdf

Number of Questions: **99**
Testing: **3×**, **4×**, **5×**, **6×**, **7×**, **8×**, **9×**, **10×**, **11×** (with **inverse**)

72 ÷ 6 = ____	6 × 10 = ____	7 × 11 = ____	3 × 4 = ____	22 ÷ 11 = ____
36 ÷ 9 = ____	6 × 11 = ____	10 ÷ 5 = ____	3 × 9 = ____	15 ÷ 3 = ____
9 × 5 = ____	132 ÷ 11 = ____	11 × 1 = ____	5 × 4 = ____	8 ÷ 4 = ____
5 × 1 = ____	12 × 11 = ____	12 × 6 = ____	6 × 7 = ____	11 × 7 = ____
11 ÷ 11 = ____	11 × 11 = ____	10 × 10 = ____	8 × 10 = ____	110 ÷ 10 = ____
24 ÷ 8 = ____	10 × 9 = ____	25 ÷ 5 = ____	30 ÷ 6 = ____	88 ÷ 11 = ____
5 × 8 = ____	11 × 6 = ____	10 × 3 = ____	44 ÷ 4 = ____	6 × 2 = ____
5 × 12 = ____	110 ÷ 11 = ____	30 ÷ 10 = ____	3 × 11 = ____	48 ÷ 4 = ____
5 × 5 = ____	10 × 12 = ____	4 × 2 = ____	11 × 7 = ____	6 × 3 = ____
4 × 10 = ____	8 × 3 = ____	96 ÷ 8 = ____	9 × 3 = ____	6 × 9 = ____
7 × 3 = ____	5 × 3 = ____	1 × 3 = ____	2 × 6 = ____	7 × 11 = ____
36 ÷ 3 = ____	4 × 11 = ____	9 × 7 = ____	18 ÷ 6 = ____	8 × 11 = ____
70 ÷ 7 = ____	4 × 5 = ____	2 × 11 = ____	3 × 2 = ____	7 ÷ 7 = ____
5 × 9 = ____	99 ÷ 9 = ____	8 × 6 = ____	10 × 6 = ____	6 × 3 = ____
11 × 3 = ____	3 × 10 = ____	20 ÷ 4 = ____	10 × 11 = ____	54 ÷ 9 = ____
9 × 10 = ____	7 × 10 = ____	10 × 7 = ____	24 ÷ 4 = ____	56 ÷ 8 = ____
5 × 10 = ____	4 × 12 = ____	4 × 6 = ____	54 ÷ 6 = ____	1 × 10 = ____
4 × 11 = ____	9 × 6 = ____	9 × 5 = ____	6 × 5 = ____	7 × 1 = ____
20 ÷ 5 = ____	9 × 12 = ____	12 × 10 = ____	10 × 8 = ____	45 ÷ 9 = ____

Number of Questions: **99**
Testing: **3×**, **4×**, **5×**, **6×**, **7×**, **8×**, **9×**, **10×**, **11×**, **12×**, **13×**, **14×**, **15×**, **16×**, **17×**, **18×**, **19×**, **20×** (with **inverse**)

8 × 15 = ____	17 × 1 = ____	45 ÷ 15 = ____	20 × 1 = ____	48 ÷ 12 = ____
204 ÷ 17 = ____	1 × 5 = ____	6 × 7 = ____	95 ÷ 19 = ____	14 × 4 = ____
7 × 8 = ____	5 × 3 = ____	8 ÷ 8 = ____	12 × 5 = ____	9 × 4 = ____
4 × 11 = ____	6 × 4 = ____	19 × 1 = ____	12 × 19 = ____	5 × 8 = ____
12 × 2 = ____	5 × 2 = ____	8 × 9 = ____	12 × 10 = ____	16 × 10 = ____
2 × 8 = ____	1 × 8 = ____	6 × 5 = ____	20 × 7 = ____	240 ÷ 20 = ____
18 × 6 = ____	63 ÷ 9 = ____	2 × 19 = ____	9 × 13 = ____	28 ÷ 7 = ____
9 × 1 = ____	9 × 2 = ____	9 ÷ 9 = ____	54 ÷ 6 = ____	108 ÷ 9 = ____
12 × 16 = ____	77 ÷ 7 = ____	10 × 6 = ____	50 ÷ 10 = ____	19 × 9 = ____
16 × 1 = ____	9 × 7 = ____	19 × 10 = ____	20 ÷ 10 = ____	32 ÷ 4 = ____
9 × 3 = ____	5 ÷ 5 = ____	105 ÷ 15 = ____	4 × 15 = ____	44 ÷ 11 = ____
6 × 12 = ____	153 ÷ 17 = ____	9 × 5 = ____	57 ÷ 19 = ____	8 × 6 = ____
34 ÷ 17 = ____	9 × 8 = ____	168 ÷ 14 = ____	36 ÷ 9 = ____	6 ÷ 3 = ____
4 × 6 = ____	96 ÷ 16 = ____	60 ÷ 20 = ____	48 ÷ 6 = ____	9 × 18 = ____
6 × 13 = ____	14 × 11 = ____	4 × 1 = ____	6 × 8 = ____	120 ÷ 15 = ____
24 ÷ 4 = ____	180 ÷ 20 = ____	72 ÷ 18 = ____	18 × 12 = ____	40 ÷ 10 = ____
84 ÷ 14 = ____	100 ÷ 20 = ____	11 × 12 = ____	19 × 3 = ____	20 × 6 = ____
15 ÷ 15 = ____	35 ÷ 5 = ____	2 × 9 = ____	7 × 4 = ____	42 ÷ 7 = ____
4 × 9 = ____	72 ÷ 9 = ____	14 ÷ 7 = ____	8 × 7 = ____	2 × 18 = ____

You will sometimes have to do a written method for these questions

Can you find the pairs? How do you know?

72% 0.5 10% 11% 0.1 50%

0.11 5% 0.05

76% 0.99

99%

0.01 1%

0.76

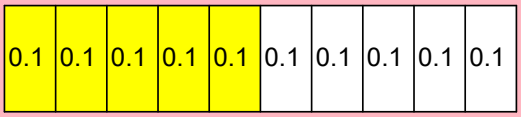
Which one is the odd one out?

The Rules:

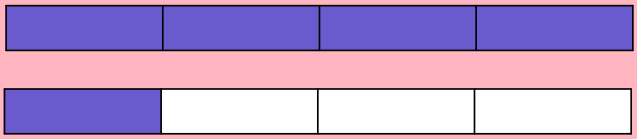
1.00 = 100%

Because 1 **unit** is 100% of the **whole**

0.5 = 50%



Because 0.5 is half of 1 whole. half = 50%



1.25 = 125%

why?

Another way to think about it. How do you calculate equivalent percentages and decimals?

Decimal to %

Multiply the decimal by 100

e.g 0.4 would be 0.4 x 100 = 40%

% to decimal

Divide the percentage by 100

e.g 34 % would be 34 ÷ 100 = 0.34

2 % would be 2 ÷ 100 = 0.02

Try these (look carefully is it percent to decimal or decimal to percent)

We will mark them together

*

0.34 =

67% =

0.03 =

0.88 =

23% =

**

180% =

1.17 =

2.9 =

2.09 =

655% =

***

This is more complex.

2.2% =

1.174 =

2.941 =

426.3% =

655.76% =

If you have found this manageable, make up your own 10 questions and find the answer. Send questions and answers to your teacher

Decimal to %

Multiply the decimal by 100

e.g 0.4 would be 0.4 x 100 = 40%

% to decimal

Divide the percentage by 100

e.g 34 % would be 34 ÷ 100 = 0.34

2 % would be 2 ÷ 100 = 0.02

*

0.34 = 34%

67% = 0.67

0.03 = 3%

0.88 = 88%

23% = 0.23

**

180% = 1.8

1.17 = 117%

2.9 = 290%

2.09 = 209%

655% = 6.55

***

2.2% = 0.022

1.174 = 117.4%

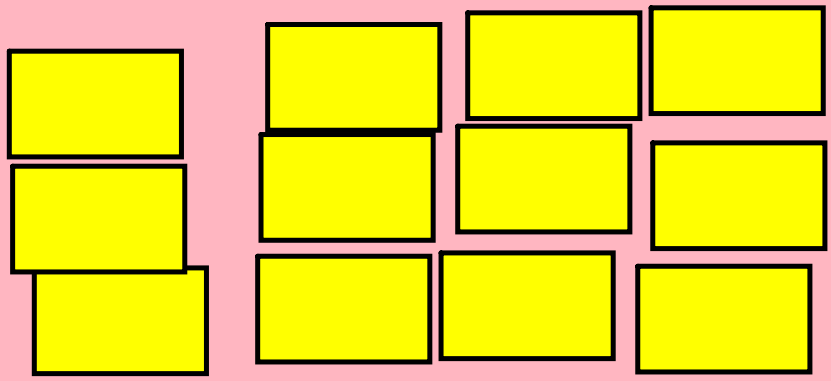
2.941 = 294.1%

426.3% = 4.263

655.76% = 6.5576

Plenary

Find the pairs.....



Attachments

Chart to fill in.docx

EIGHTHS as decimals and percentages.docx

Number line.docx

Find percentages of amounts 1.docx

Old white rose FDP questions.docx

Extension % of amounts.docx

More Able Table.docx

(GD) Increase-Decrease percentage.docx

GD comparison.docx

Trickier table.docx

FDP-Conversions.docx

Y5 Mastery and MwithGD.docx

Y6 Mastery and MwithGD.docx

Yr 5.6 WB 18.1.21 Maths lesson 5 Timestable starter challenges .pdf