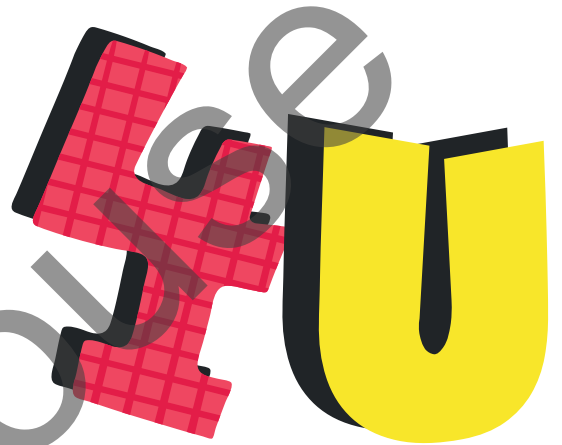
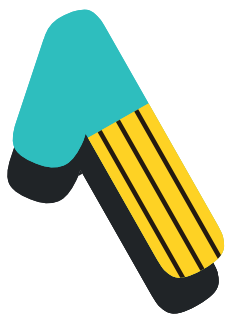
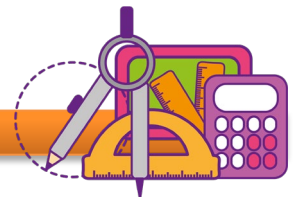
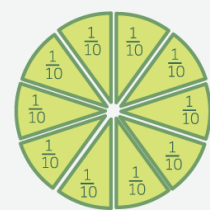
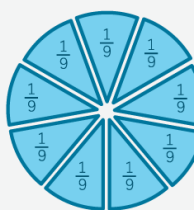
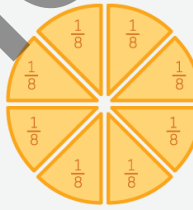
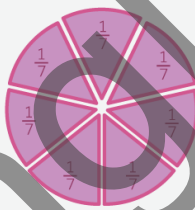
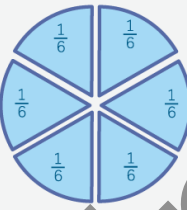
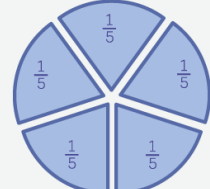
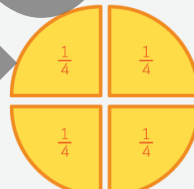
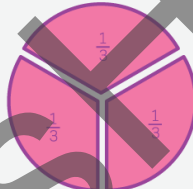
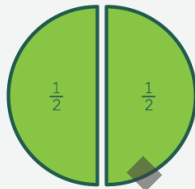


Maths

Fifth Grade



FRACTIONS





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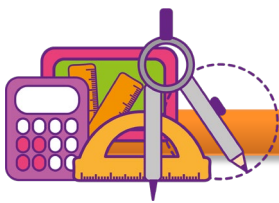
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UNIT 1 More about numbers



TAKE THE CHALLENGE



Read and answer the question.
Put the numbers in order from the smallest to the greatest. Then write the letters in that order to find the answer to the question below.

- What jam can be eaten on the road?

A = 2.11

T = 1.22

F = 2.21

A = 1.20

J = 4.89

F = 2.22

R = 1.27

C = 3.60

I = 3.06

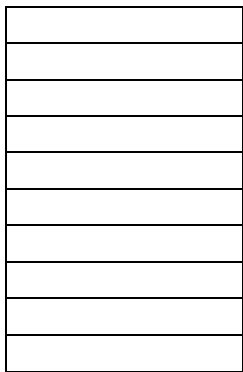
A = 4.90

M = 4.99

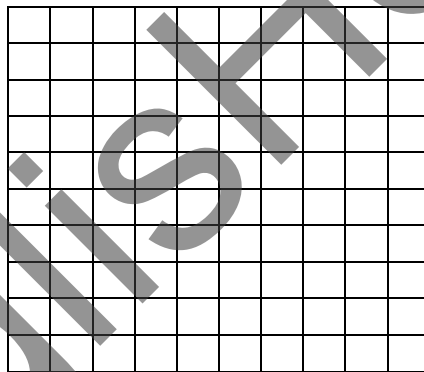
Letters

Numbers

Look and colour to illustrate the numbers.



0.6
six tenths



0.60
sixty hundredths



Look and complete the chart.

4	3	2	.	5	6
Hundreds	Tens	Ones	Decimal point	Tenths	Hundredths

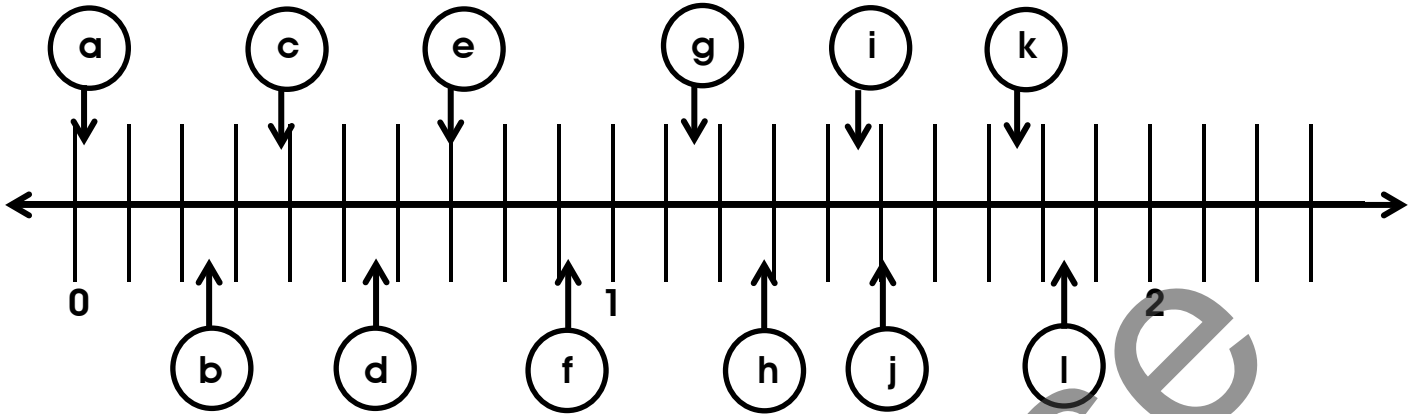
6 5 7 . 9 8
1 2 3 . 5 6
4 5 . 0 3
1 8 2 . 2 6
2 5 . 6 9

H	T	O	.	T	H





Look and find the numbers on the number line.



- 0.38 _____
- 1.16 _____
- 1.75 _____
- 0.54 _____
- 0.70 _____
- 1.47 _____
- 0.02 _____
- 1.50 _____
- 1.29 _____
- 0.25 _____
- 1.83 _____
- 0.91 _____

Draw a number line and find the numbers.

- 3.4
- 8.6
- 6.9
- 0.7
- 3.2
- 1.5
- 6.8
- 4.1
- 9.6
- 2.3
- 7
- 5.1



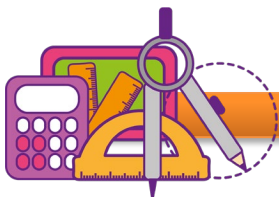
Fractions and decimals

Read and complete.

Ex. $\frac{3}{4} \longrightarrow 3 \div 4$

$\frac{3}{4} = \underline{\hspace{2cm}}$

$$\begin{array}{r}
 \overset{.}{3} \overset{7}{0} \overset{5}{0} \\
 4 \overline{) 300} \\
 \underline{- 28} \\
 20 \\
 \underline{- 20} \\
 0
 \end{array}$$





Write these fractions as decimals.

8/10 grid

3/12 grid

2/10 grid

6/10 grid

4/10 grid

8/12 grid

Compare the following fractions and say if they are greater than or less than.

a) 4 3/4 \square 3 5/6

b) 2 1/2 \square 2 3/5

c) 6 4/7 \square 6 4/9

d) 1 7/9 \square 1 5/7

e) 6 3/8 \square 7 1/4

f) 2 5/6 \square 2 3/4

Change these decimal numbers into fractions.

a) 7.86

b) 8.343

c) 9.1

d) 9.563

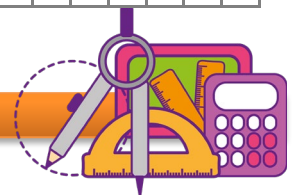
e) 8.9

f) 9.58

g) 10.356

h) 10.7

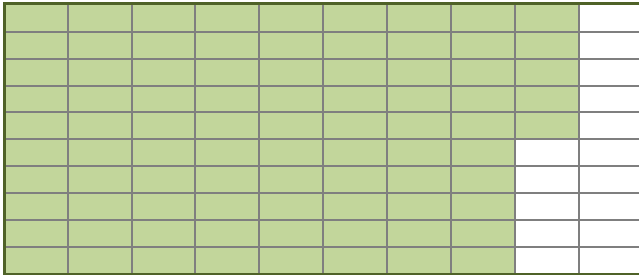
Large grid for calculations





You're up!

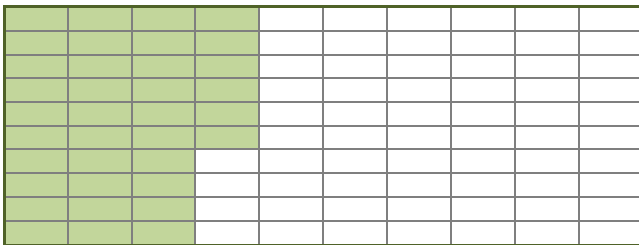
Look and complete. Each chart is a unit.



Fraction

Decimal

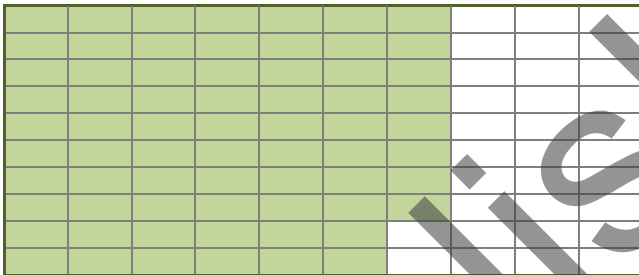
Percent



Fraction

Decimal

Percent



Fraction

Decimal

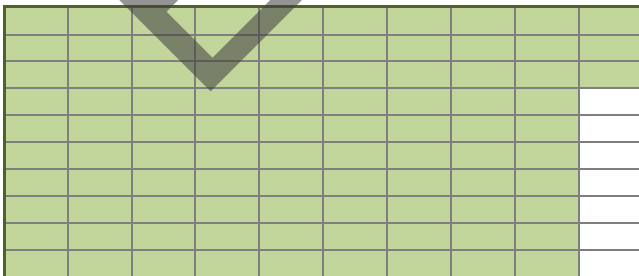
Percent



Fraction

Decimal

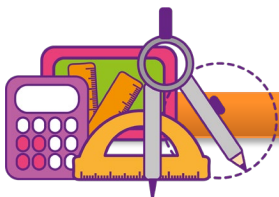
Percent



Fraction

Decimal

Percent





Answer these.

Numbers	Times 10	Times 100	Times 1 000
0.413
7.45
0.128
10
88.4

Answer these.

Numbers	Divided by 10	Divided by 100	Divided by 1 000
23.567
14.34
10
87.965
5.427

Solve these and write how long it takes you.

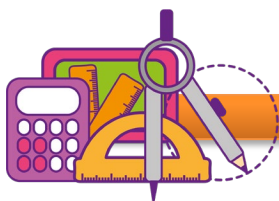
a) $0.698 \times 10 = \dots\dots\dots$ f) $5.595 \times 100 = \dots\dots\dots$

b) $1.8 \times 10 = \dots\dots\dots$ g) $0.4 \times 1\,000 = \dots\dots\dots$

c) $7.9 \times 10 = \dots\dots\dots$ h) $0.241 \times 1\,000 = \dots\dots\dots$

d) $7.652 \times 100 = \dots\dots\dots$ i) $9.353 \times 1\,000 = \dots\dots\dots$

e) $0.57 \times 100 = \dots\dots\dots$ It took me about _____ .





Put the numbers in order. Then divide them by the number given.

5.345 5.467

5.723 5.432

..... ÷ 10 =

..... ÷ 10 =

..... ÷ 10 =

..... ÷ 10 =

6.789 6.934

6.543 6.136

..... ÷ 10 =

..... ÷ 10 =

..... ÷ 10 =

..... ÷ 10 =

1.155 1.345

1.552 1.105

..... ÷ 100 =

..... ÷ 100 =

..... ÷ 100 =

..... ÷ 100 =

4.087 4.388

4.213 4.538

..... ÷ 1 000 =

..... ÷ 1 000 =

..... ÷ 1 000 =

..... ÷ 1 000 =

Look and complete.

Which of 10, 100 or 1 000 goes on the line?

a) $76 \times \underline{\hspace{2cm}} = 76\,000$

b) $8.26 \times \underline{\hspace{2cm}} = 82.6$

c) $4.6 \times \underline{\hspace{2cm}} = 460$

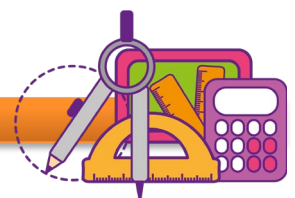
d) $810 \div \underline{\hspace{2cm}} = 8.1$

e) $630 \div \underline{\hspace{2cm}} = 0.63$

f) $506 \div \underline{\hspace{2cm}} = 50.6$

g) $294 \times \underline{\hspace{2cm}} = 29\,400$

h) $3186 \div \underline{\hspace{2cm}} = 3.186$





You're up!

Look, talk and colour the boxes.

- Practise multiplying and dividing by 10, 100, 1000.

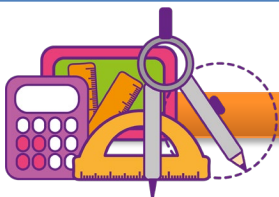
Use the following colours : 10 – blue, 100 – orange, 1000 – pink.

0.06	5.95	27.98
60	59.5	0.2798
287.6	0.325	1100
2.876	3.25	1.1

27.98	65.289	13.8
27980	652.89	0.138
110	0.343	29900
1.1	3.43	29.9

12.65	3.25	2.87
12650	32.5	0.0287
10870	0.00301	120
108.7	0.0301	0.12

2.87	3.43	3.99
2870	34.3	0.0399
12	32.198	86598
0.12	321.98	865.98





Look and put a tick in the box if the number is a divisible one. If it is not a divisible number, put a cross in the box.

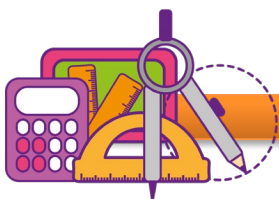
546	<input type="checkbox"/>	13.321	<input type="checkbox"/>	32	<input type="checkbox"/>	25	<input type="checkbox"/>
11.766	<input type="checkbox"/>	11.200	<input type="checkbox"/>	45	<input type="checkbox"/>	763	<input type="checkbox"/>
74	<input type="checkbox"/>	8.342	<input type="checkbox"/>	9.111	<input type="checkbox"/>	7.545	<input type="checkbox"/>

Use the rules of divisibility to answer these.

- | | |
|-----------------------------|------------------------------|
| a) 22 is divisible by | f) 40 is divisible by |
| b) 38 is divisible by | g) 63 is divisible by |
| c) 54 is divisible by | h) 100 is divisible by |
| d) 12 is divisible by | i) 56 is divisible by |

Solve the puzzle. Can the numbers be divided by the ones in the middle?

48	36	28	40	32	42	18	24	12	30
↓					↓				
4					6				
↓					↓				
36	30	33	12	24	20	25	10	35	15
↓					↓				
3					5				
↓					↓				





Look and circle.

Divisible by 4

215	914
350	
480	712

Divisible by 5

155	712
385	
322	941

Divisible by 6

108	922
217	
455	450

Divisible by 7

350	147
325	
221	190

Divisible by 8

370	400
90	
140	104

Divisible by 9

702	915
320	
458	225

Place the numbers on the Venn diagram. What are the numbers divisible by?

You don't need some numbers.

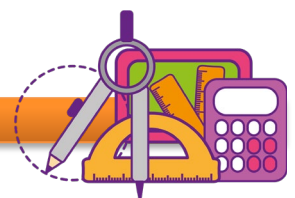
11 8 41 21 28 60 25 15 24 32

7 34

27 36

20 12

30 45





Write the numbers in the correct section.

2700

3845

1004

8523

3915

7440

3618

7158

6237

5634

Divisible by 5

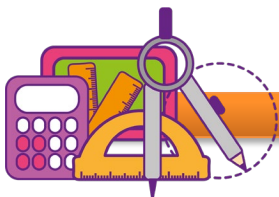
Divisible by 9

Divisible by 6

How many numbers can you find to fill in the diagram?

Divisible by 2

Divisible by 8





Find the first two common multiples for each set of numbers.

a) _____

6.

9.

b) _____

3.

4.

c) _____

7.

8.

a) _____

6.

12.

9.

b) _____

2.

4.

8.

c) _____

7.

9.

21.





Read and find the least common multiple for each pair of numbers.

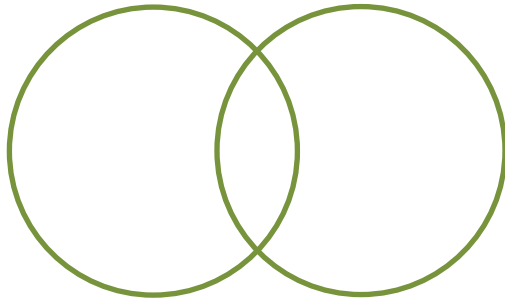
The least common multiple of 3 and 4 is 12.

Multiples of 3: 3, __, __, **6**, __, __, __, __

Multiples of 4: 4, __, **8**, __, __, __, __



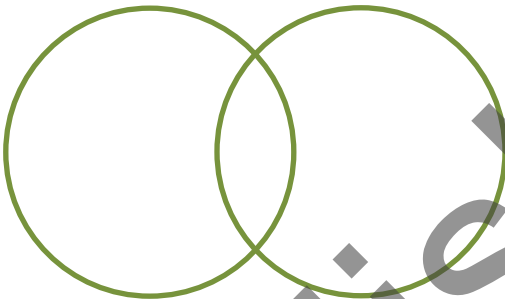
3, 9



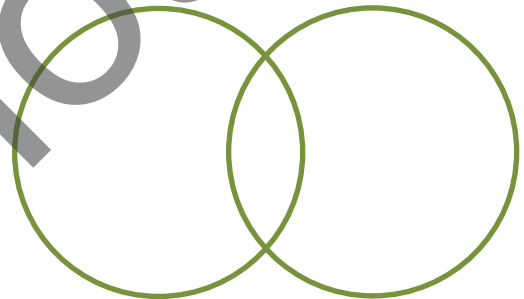
11, 5



4, 7



4, 9



Factors

Read and complete.

by In is the to a

A factor is _____ whole number multiplied _____ another number _____ find a product.

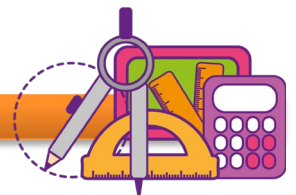
Ex.

$$2 \times 3 = 6$$

_____ other words, a factor _____ asking, "What can we divide _____ number by?"

$$6 \div 3 = \underline{\quad}$$

$$6 \div 2 = \underline{\quad}$$





Write the factors of these numbers – in order.

$12 = \underline{\hspace{2cm}}$

$81 = \underline{\hspace{2cm}}$

$18 = \underline{\hspace{2cm}}$

$36 = \underline{\hspace{2cm}}$

$27 = \underline{\hspace{2cm}}$

$50 = \underline{\hspace{2cm}}$

Read and find the factors of the numbers on the right.



Factors are numbers that you multiply together to get another number. For example, 2 multiplied by 4 equals 8. So 2 and 4 are the factors of 8.

$10 = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$

$24 = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$

$32 = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$

$18 = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$

$30 = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$

$39 = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$

Look and find the missing factors.

$15 = 3 \times \underline{\hspace{1cm}}$

$21 = 3 \times \underline{\hspace{1cm}}$

$42 = 7 \times \underline{\hspace{1cm}}$

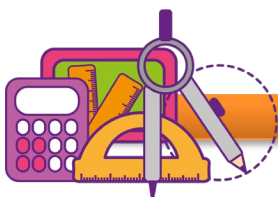
$36 = 2 \times 2 \times 3 \times \underline{\hspace{1cm}}$

$75 = 5 \times 3 \times \underline{\hspace{1cm}}$

$45 = 9 \times \underline{\hspace{1cm}}$

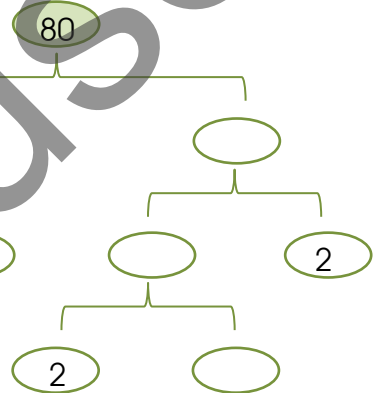
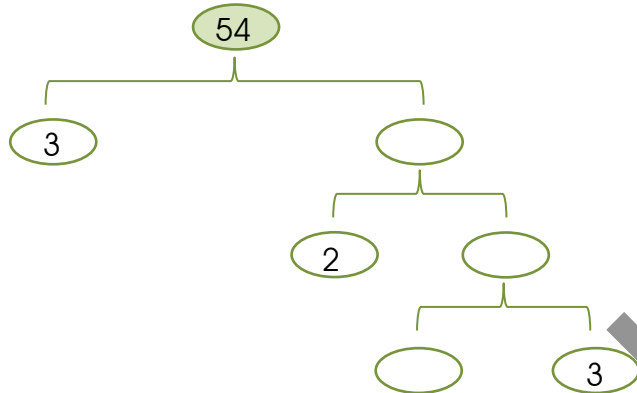
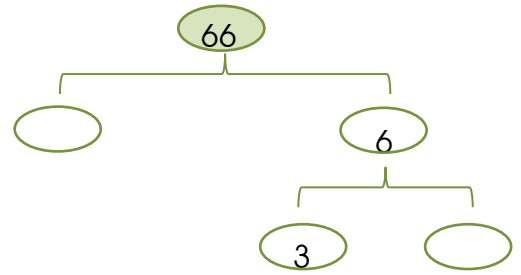
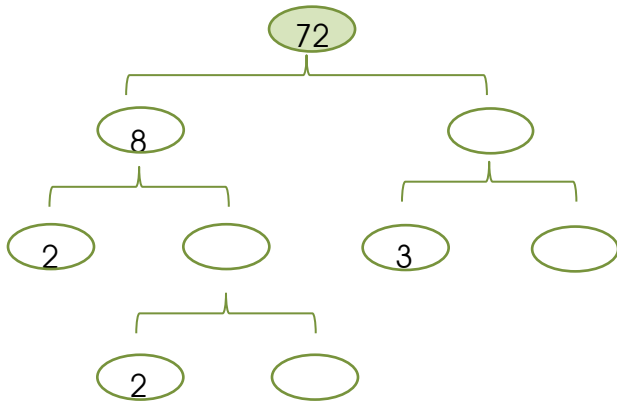
$60 = 2 \times 3 \times 2 \times \underline{\hspace{1cm}}$

Remember, when a factor is a prime number, it is called "a prime factor."





Complete the prime factor tree for each number.



Prime numbers

Read and colour all the prime numbers. Then answer the questions.

Prime numbers are numbers (greater than 1) that cannot be divided by any number, except themselves and 1.

7 is a prime number because it can only be divided by 7 and 1.

70 is not a prime number because it can be divided by 70, 35, 14, 10, 7, 5, 2 and 1.

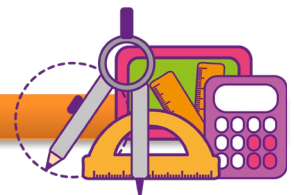
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

a) Is the number 7 a prime number? _____
Why (not)?

c) Is the number 9 a prime number? _____
Why (not)?

b) Is the number 8 a prime number? _____
Why (not)?

d) Is the number 5 a prime number? _____
Why (not)?





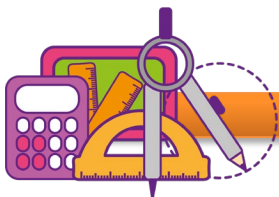
You're up!

Read and circle the correct option.

- 1) Which of the following numbers has both 4 and 7 as factors?
a) 28 b) 36 c) 20 d) 42
- 2) Which of the following numbers is a factor of 8 but not a factor of 18?
a) 2 b) 6 c) 3 d) 4
- 3) Which of the following numbers has both 3 and 5 as factors?
a) 25 b) 6 c) 45 d) 18
- 4) Which of the following numbers has both 2 and 6 as factors?
a) 48 b) 38 c) 16 d) 26
- 5) Which of the following numbers is a factor of 18 but not a factor of 12?
a) 4 b) 9 c) 2 d) 3

Look and colour the circles that have prime numbers.

3	6	10	2	14	11
21	5	22	23	30	
42	29	41	50	28	46
52	47	53	54	60	





UNIT 2 Inverse operations



TAKE THE CHALLENGE



Read and answer the questions.

1: _____

2: _____

3: _____

4: _____

- 1) You think of a number. Then multiply it by 2 and the answer you get is 24, what was your number?
- 2) You think of a number. Then subtract 25 and add 2. The answer you get is 27, what was your number?
- 3) You think of a number. Then add 15 and multiply it by 2. Next you divide it by 2 and the answer you get is 16, what was your number?
- 4) You think of a number and double it. Then you add 31. Next you subtract 4. The answer you get is 149, what was your number?

Read and complete the definition and the example.

of

the

to

a

that

and

Inverse Operation is _____ operation _____ reverses the effect _____ another operation.

Addition _____ subtraction are inverse operations.

You can use inverse operation _____ check the answer in a calculation.

$$54 + 44 = \underline{\quad\quad\quad} \qquad 98 - 54 = \underline{\quad\quad\quad}$$

You know that $7 + 3 = \underline{\quad\quad}$; if you need to find a number in _____ math problem, you can use the opposite operation.

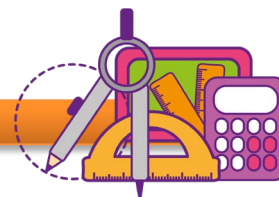
$$7 + \underline{\quad} = 10 \qquad 10 - 7 = 3 \qquad \underline{\quad} = 3$$



Find the missing numbers.

$$34 + \underline{\quad} = 40 \quad 25 + \underline{\quad} = 63 \quad 87 + \underline{\quad} = 123 \quad 42 + \underline{\quad} = 75 \quad 12 + \underline{\quad} = 30$$

$$\underline{\quad} + 43 = 67 \quad \underline{\quad} + 38 = 53 \quad \underline{\quad} + 71 = 160 \quad \underline{\quad} + 52 = 91 \quad \underline{\quad} + 13 = 58$$



Read and complete.

Multiplication and division are inverse operations.

$7 \times 3 = \underline{\quad}$ Let's check! $21 \div 3 = \underline{\quad}$

$9 \times \underline{\quad} = 369$ Let's check! $369 \div 9 = \underline{\quad}$

$63 \div 9 = \underline{\quad}$ Let's check! $9 \times 7 = \underline{\quad}$

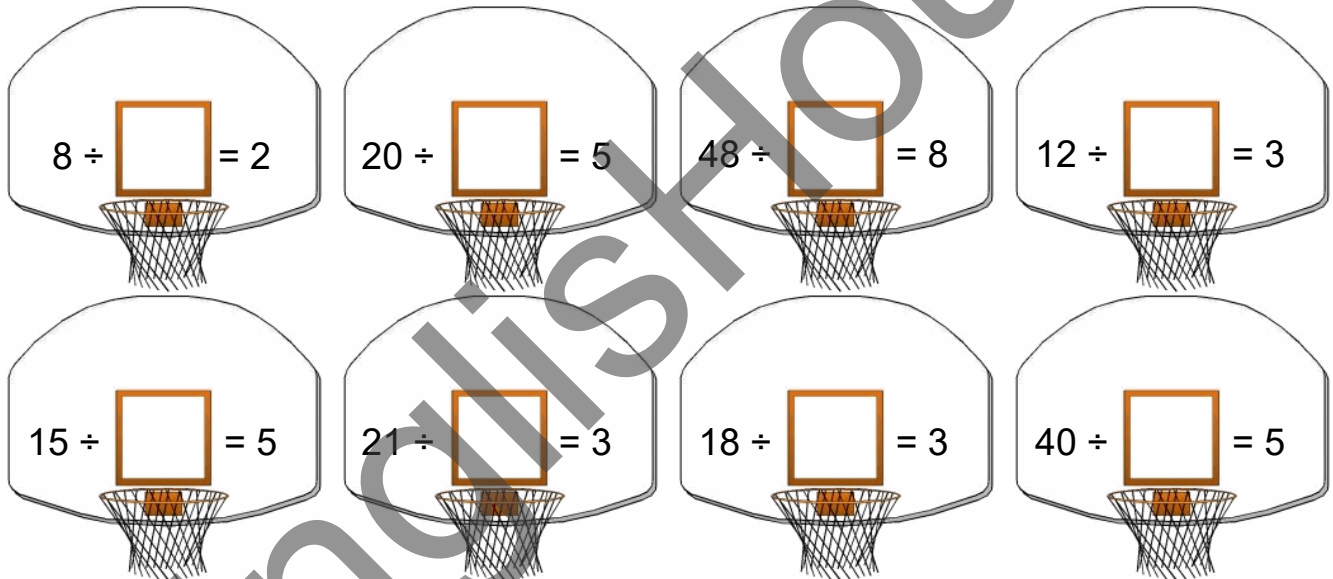


Find the missing numbers.

$72 \div \underline{\quad} = 9$ $6 \times \underline{\quad} = 42$ $\underline{\quad} \times 3 = 24$ $\underline{\quad} \div 10 = 7$ $11 \times \underline{\quad} = 132$

$114 \div \underline{\quad} = 57$ $33 \times \underline{\quad} = 495$ $23 \times \underline{\quad} = 115$ $\underline{\quad} \div 8 = 22$ $\underline{\quad} \div 16 = 5$

Can you complete these in one minute?



$8 \div \square = 2$ $20 \div \square = 5$ $48 \div \square = 8$ $12 \div \square = 3$
 $15 \div \square = 5$ $21 \div \square = 3$ $18 \div \square = 3$ $40 \div \square = 5$

Brackets

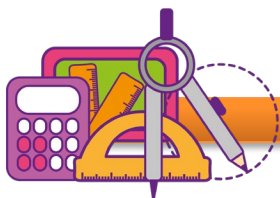
Read and complete.

of it that to in

Brackets are used _____ group numbers. When a part _____ a problem is _____ brackets, _____ is necessary _____ you work out this part first.

Ex.

$3 + (2 \times 3) = 3 + \underline{\quad} = \underline{\quad}$





You're up

Look and complete.

Set 1

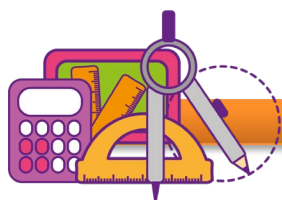
a)	5	+	6	=	___	11	-	6	=	___
b)	6	-	5	=	___	1	+	5	=	___
c)	5	x	6	=	___	30	÷	6	=	___
d)	10	÷	5	=	___	2	x	5	=	___

Set 2

a)	5	+	6	=	___	11	-	___	=	___
b)	20	-	10	=	___	10	+	___	=	___
c)	5	x	12	=	___	___	÷	12	=	___
d)	120	÷	10	=	___	___	x	10	=	___

Set 3














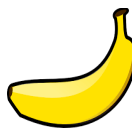
a)	5	___	6	=	11	11	___	6	=	5
b)	12	___	5	=	7	7	___	5	=	12
c)	13	___	13	=	169	169	___	13	=	13
d)	18	___	6	=	3	3	___	6	=	18










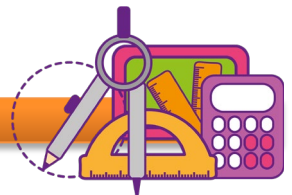


You're up!

Can you find out what the values of the fruit and the shapes are?

	+		+		=	30		=
	+		+		=	18		=
	-		=	2				=
	+		+		=	?		

				16		=
				14		=
				16		=
				20		
17	15	17	17			





Match the words with the lines.

- 1. Point
- 2. Line segment
- 3. Line
- 4. Ray
- 5. Parallel lines
- 6. Perpendicular lines
- 7. Angle
- 8. Midpoint

- a)
- b)
- c)
- d)
- e)
- f)
- g)
- h)

Talk to your friends and decide on how to define the words.

Parallel lines

.....

.....

.....

.....

Perpendicular lines

.....

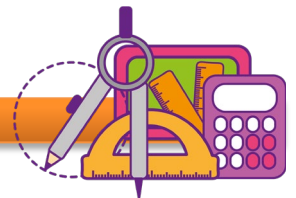
.....

.....

.....

Look and label the pictures.

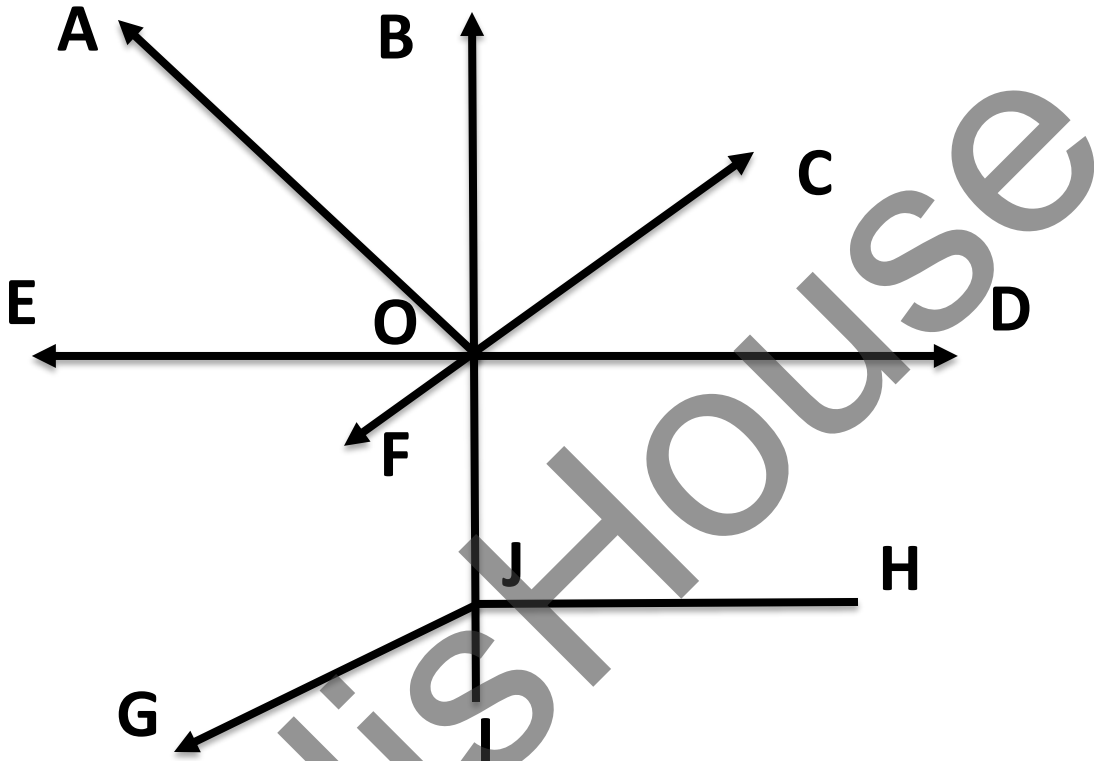
a) _____	b) _____	c) _____	d) _____
e) _____	f) _____	g) _____	h) _____





You're up!

Look and write. Use the words on page 31.



OA is a _____

OJ is a _____

ED is a _____

JG is a _____

JH is a _____

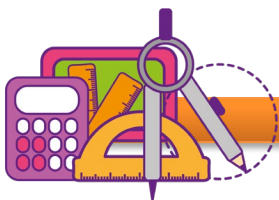
OD and JH are: _____

BI and ED are: _____

OE is a _____

CF is a _____

JI is a _____



Angles



TAKE THE CHALLENGE



Read and answer the question.

A Ferris wheel makes five full rotations and then stops to let more riders on. How many degrees in total did the Ferris wheel rotate before stopping?

Explain what you did to find the answer:

.....

.....

.....

.....

Read and use the words to complete the instructions.

- be up This at to with of on

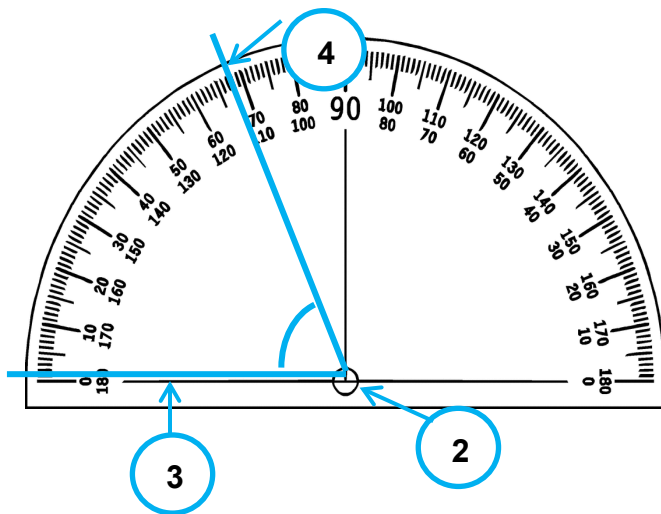
You can use a protractor _____ measure the size _____ an angle – It can also _____ helpful to make a sensible estimate first.

1. _____ angle is acute. The estimate is 70° .

2. Place the cross of the protractor _____ top of the corner of the angle.

3. Line _____ the bottom line of the protractor _____ one of the lines of the angle.

4. Starting _____ 0° , count up to the angle's other line and read the measurement. This angle is 67° .





Read and label the angles.

Acute angle



Less than 90°

Right angle



Exactly 90°

Obtuse angle



Greater than 90° but less than 180°

Straight angle



Exactly 180°

Reflex angle



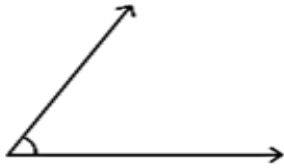
Greater than 180°

Full rotation



Exactly 360°

a) Type:



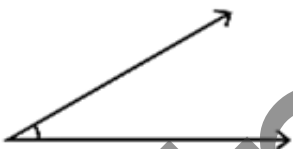
b) Type:



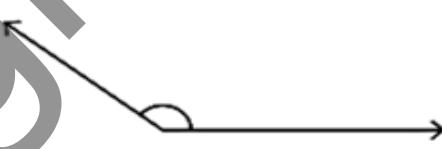
c) Type:



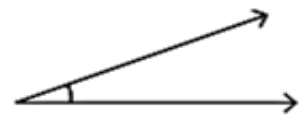
d) Type:



e) Type:



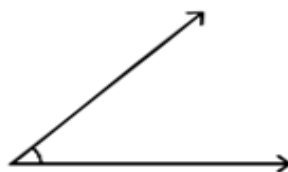
f) Type:



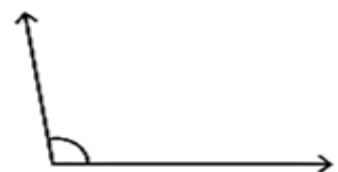
g) Type:



h) Type:



i) Type:



j) Type:

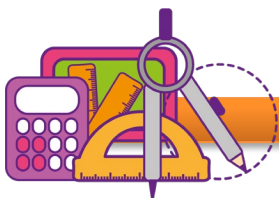
49°

k) Type:

82°

l) Type:

180°





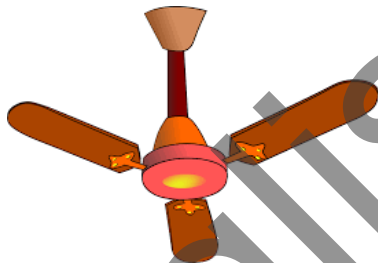
You're up!

Read and answer the questions. Draw to illustrate your answers.

1. A water sprinkler covers 90 degrees of a backyard lawn. How many times will the sprinkler need to be moved in order to cover the full area of lawn?

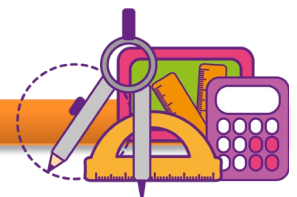


2. A ceiling fan rotates 75 degrees and then stops. How many more degrees does it need to rotate in order to make a full rotation?



At ice-skating lessons, Rocy attempts to do a 360 degree spin but only manages a quarter-turn on her first attempt. How many degrees short of her goal was Rocy's first attempt?





UNIT 3 Comparing fractions



TAKE THE CHALLENGE



Read and answer the question.

Dana is making shorts for her son's soccer team. Yesterday, she used $\frac{4}{6}$ m of cloth and today she used $\frac{3}{5}$. When did she use more cloth?

Explain what you did to find the answer:

.....

.....

.....

.....

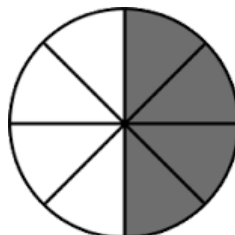
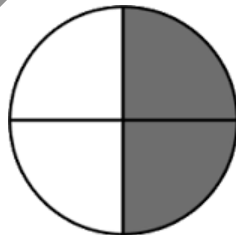
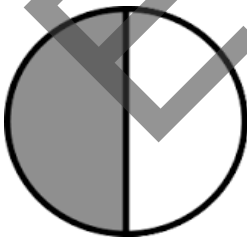
.....

Read and complete.

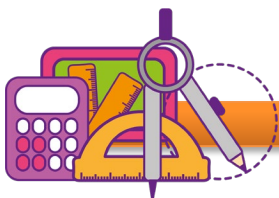
Equivalent fractions are fractions that have the same value, but they are written differently.

$$\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$$

You can also use pictures to represent them.



$$\frac{1}{2} = \frac{4}{8} = \frac{4}{8}$$





You can make equivalent fractions by multiplying or dividing both numbers (numerator and denominator) by the same amount.

$$\frac{3}{8} \times \frac{4}{4} = \frac{12}{32}$$

$$\frac{45}{50} \div \frac{5}{5} = \frac{9}{10}$$



Find equivalent fractions.

$$\frac{6}{5} \times \frac{\square}{\square} = \frac{\square}{\square}$$

$$\frac{27}{33} \times \frac{\square}{\square} = \frac{\square}{\square}$$

$$\frac{7}{2} \times \frac{\square}{\square} = \frac{\square}{\square}$$

$$\frac{44}{60} \times \frac{\square}{\square} = \frac{\square}{\square}$$

$$\frac{12}{9} \times \frac{\square}{\square} = \frac{\square}{\square}$$

$$\frac{27}{36} \times \frac{\square}{\square} = \frac{\square}{\square}$$

Write if the fraction was divided (\div) or multiplied (\times).

a)

$$\frac{36}{42} \square \frac{6}{7}$$

b)

$$\frac{3}{5} \square \frac{27}{45}$$

c)

$$\frac{72}{24} \square \frac{9}{3}$$

d)

$$\frac{48}{64} \square \frac{12}{16}$$

e)

$$\frac{21}{42} \square \frac{63}{126}$$

f)

$$\frac{5}{7} \square \frac{15}{21}$$

g)

$$\frac{95}{75} \square \frac{19}{15}$$

h)

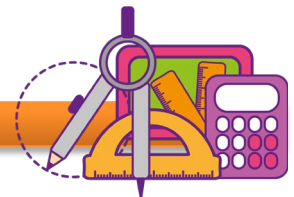
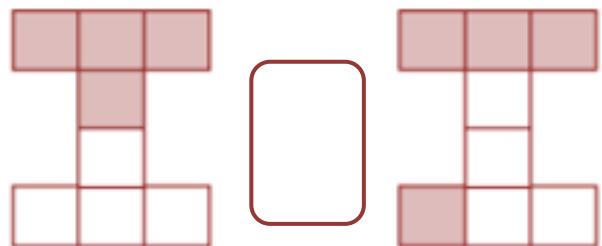
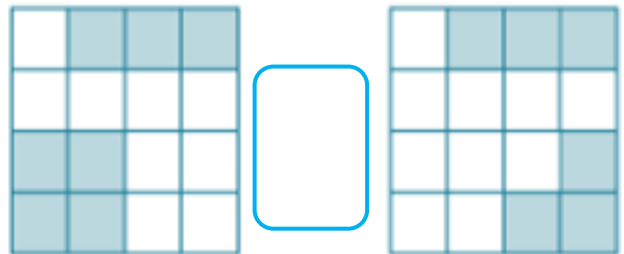
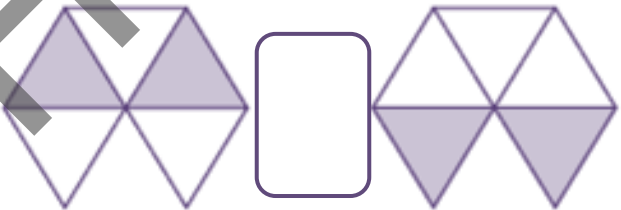
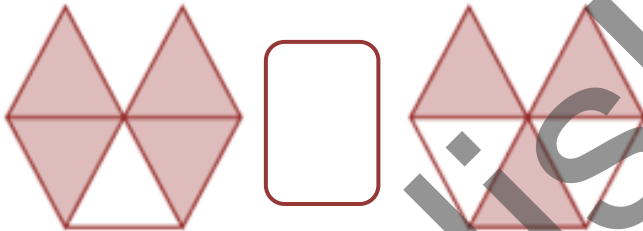
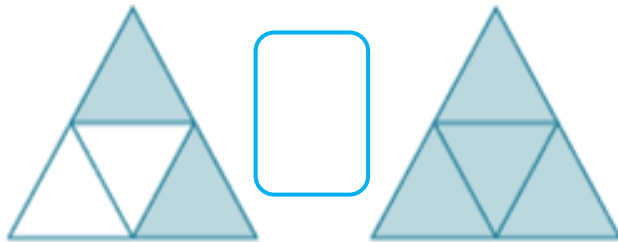
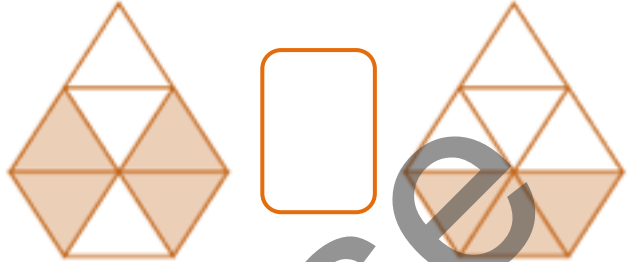
$$\frac{49}{63} \square \frac{7}{9}$$





You're up!

Look and compare the fractions by using " $<$ ", " $>$ " or " $=$ ".





You're up!

Look and write the missing numbers. Make the fractions equivalent.

1.

$$\frac{1}{4} = \frac{4}{\square}$$

6.

$$\frac{1}{2} = \frac{\square}{6}$$

2.

$$\frac{1}{3} = \frac{5}{\square}$$

7.

$$\frac{1}{5} = \frac{\square}{15}$$

3.

$$\frac{3}{8} = \frac{6}{\square}$$

8.

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

4.

$$\frac{6}{7} = \frac{12}{\square}$$

9.

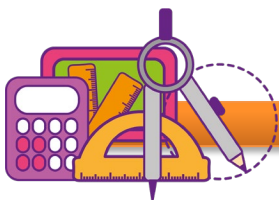
$$\frac{2}{3} = \frac{\square}{15}$$

5.

$$\frac{4}{5} = \frac{8}{\square}$$

10.

$$\frac{5}{8} = \frac{\square}{16}$$





Mixed numbers

Read and complete. Then write.

Sam is selling cakes. Each cake has 5 slices. She has 13 slices of chocolate cake and 17 slices of blueberry cake.

Each slice costs \$12, How much can she earn if she sells three cakes?

$$13 \text{ slices} = 2 \frac{3}{5}$$

$$17 \text{ slices} = 3 \frac{2}{5}$$

Answer:

Read and complete.

below

were

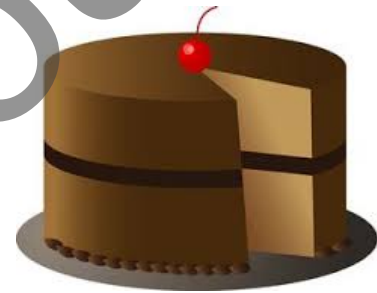
next to

with

into

more

In the example _____, the number _____ the fraction means "a whole." Sam had 2 complete chocolate cakes and 3 _____ slices. The same happened _____ the blueberry cake; there _____ 3 complete cakes and 2 extra slices. To change mixed numbers _____ improper fractions, you have to:



1. Multiply the whole by the denominator.

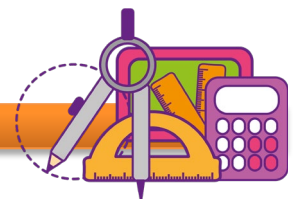
$$2 \frac{3}{5} \quad \dots \quad 2 \times 5 = 10$$

2. Add the result and the numerator.

$$\dots \quad 10 + 3 = 13$$

3. Write the result as the new numerator and use the same denominator.

$$\dots \quad \frac{13}{5}$$





To subtract fractions with unlike denominators, you have to change to equivalent fractions the same way you did it with the adding process."

Change the mixed numbers to improper fractions. Then to equivalent fractions, subtract and finally simplify, if possible.

a) $5 \frac{5}{6} - 2 \frac{3}{4} =$

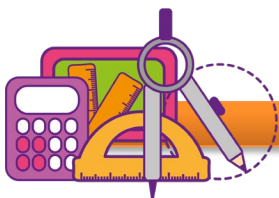
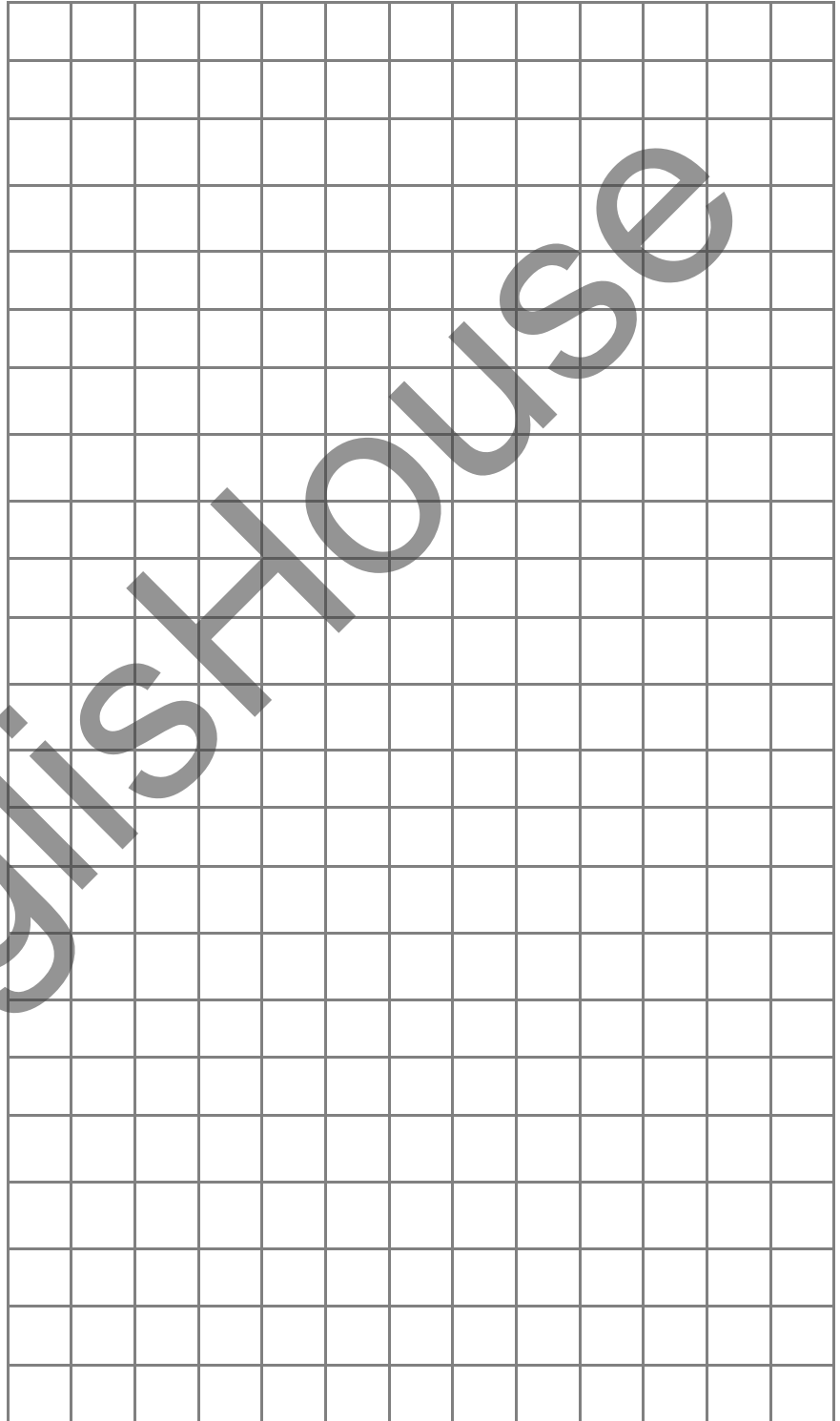
b) $4 \frac{2}{3} - 2 \frac{5}{6} =$

c) $9 \frac{3}{2} - 5 \frac{6}{9} =$

d) $6 \frac{8}{11} - 2 \frac{4}{3} =$

e) $2 \frac{4}{7} - 1 \frac{1}{2} =$

f) $8 \frac{4}{5} - 3 \frac{7}{8} =$



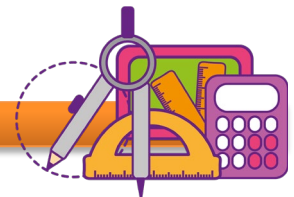


You're up!

Look and find 4 chains of equivalent fractions. There is one example.

Example $\frac{5}{6} = \frac{10}{12} = \frac{20}{24}$

$\frac{20}{24}$	$\frac{1}{2}$	$\frac{4}{8}$	$\frac{9}{15}$	$\frac{16}{32}$
$\frac{4}{20}$	$\frac{12}{16}$	$\frac{3}{18}$	$\frac{10}{15}$	$\frac{8}{20}$
$\frac{2}{3}$	$\frac{12}{60}$	$\frac{5}{12}$	$\frac{36}{180}$	$\frac{25}{60}$
$\frac{40}{60}$	$\frac{4}{24}$	$\frac{5}{6}$	$\frac{10}{12}$	$\frac{12}{20}$
$\frac{4}{6}$	$\frac{3}{12}$	$\frac{20}{30}$	$\frac{125}{300}$	$\frac{6}{18}$



Area of triangles and parallelograms



TAKE THE CHALLENGE



Read and answer the questions.

To calculate the area of a rectangle, you should multiply the length of its base by its height.

3.5 cm



7.3 cm

What is the area of the rectangle?

3.5 cm



7.3 cm

What would you do to have the area of the following triangle?

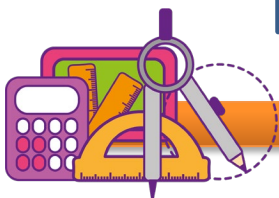
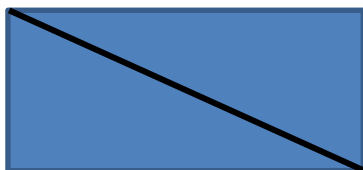
Concepts - Area

Read and complete.

from into To be of

The area _____ a polygon is the number of square units inside that polygon.

_____ find the area of a triangle, multiply the base by the height, and then divide by 2. The division by 2 comes _____ the fact that a parallelogram can _____ divided _____ 2 triangles.



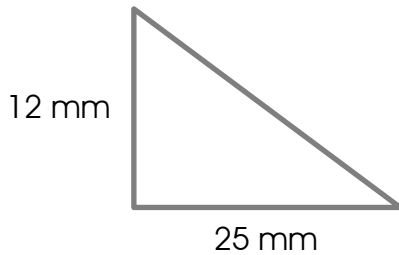


Since the area of a parallelogram is **base X height**, the area of a triangle should be one half the area of a parallelogram (as we saw in the previous picture). Then the formula to calculate the area of a triangle is **base X height, divided by two**.

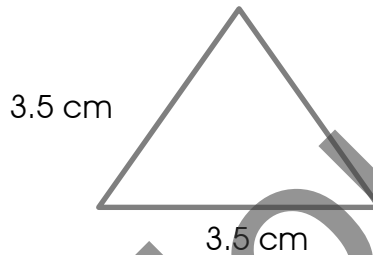
The area of any shape is expressed in Square units.
Examples: m^2 , cm^2 , mm^2 , etc.



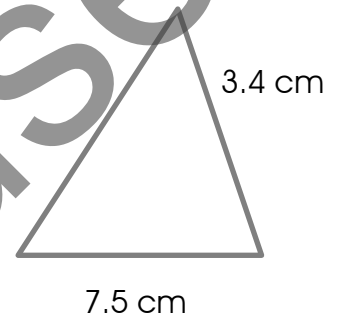
Calculate the area of these triangles.



A =



A =



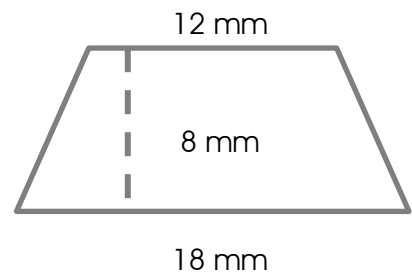
A =

Read and answer the questions.

What is the name of this figure?

Can you see how different it is from a rectangle?

How do you calculate the area of it?



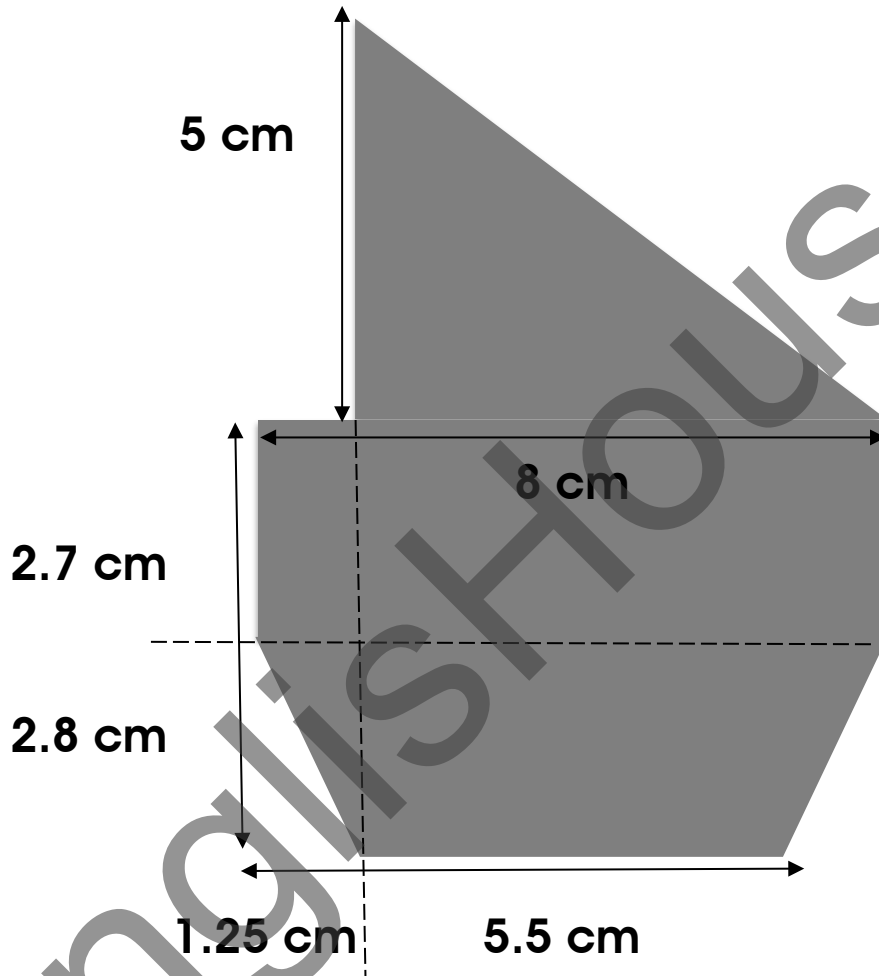
- Do you remember parallelograms?
The area of a parallelogram is the same as the area of a rectangle, if, and only if, the figure has the same base and height – base X height.





You're up!

Can you find the area of this shape?



Explain the process:

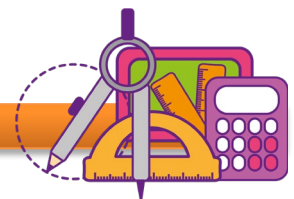
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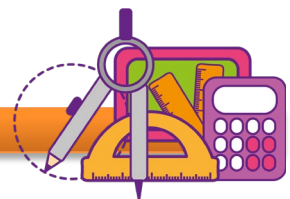
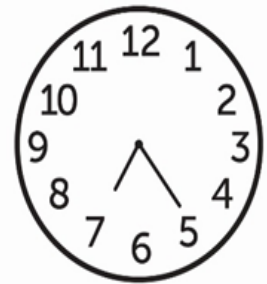
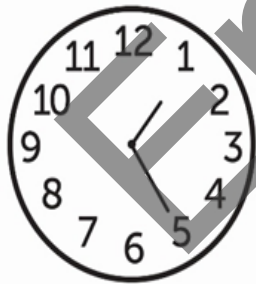
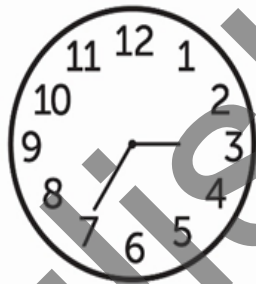
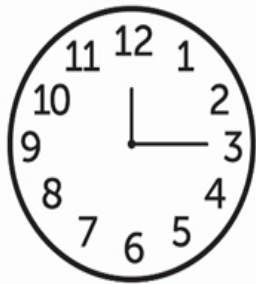
We use **at + time** when giving the time of a specific event.

We use **It is** or **It's** to answer a question that asks for the time right now.



1. The class starts nine o'clock.
2. What's the time? It' twenty to five.
3. The flight leaves ten to three.
4. What time is it? It half past four.

Look and write the times shown on the clocks. Then write the times in words.





N.	Numbers	Words
1.	___ : ___
2.	___ : ___
3.	___ : ___
4.	___ : ___
5.	___ : ___
6.	___ : ___
7.	___ : ___
8.	___ : ___

Read and answer the questions.

1. What time is this?
 - a) 55 minutes later than 4:25 pm.
 - b) 20 minutes earlier than 7:30 am.
 - c) 2 hours and 15 minutes later than 5:30 am.
 - d) 1 hour and 45 minutes later than 9:15 pm.
2. It takes Sara 35 minutes to walk to the park. If she arrives at 4 o'clock, at what time does she leave home?
3. A flight from Can Cun to Mexico City takes 1 hour and 15 minutes. The 3:30 pm flight is delayed by 40 minutes.
What time will it land in Mexico City?



Temperature

Read and answer the question.

In the morning, the temperature is 12°C . At noon, the temperature increases 10° . Finally, at night, the temperature decreases 5° .

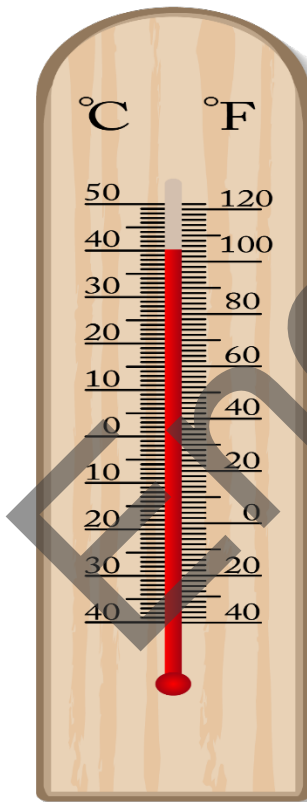
What was the final temperature that day? _____

Temperature means measuring **how hot** or **cold** something is.

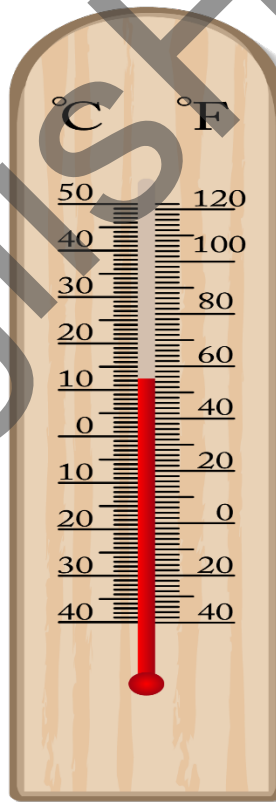
It is often measured using a thermometer. The unit of measurement is degrees Celsius - $^{\circ}\text{C}$ or Fahrenheit - $^{\circ}\text{F}$.



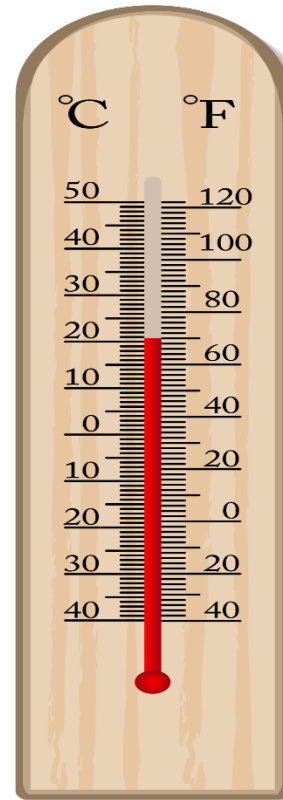
Look and write the temperature of each thermometer in Celsius and Fahrenheit degrees



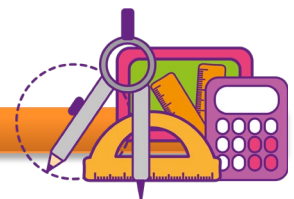
1. /



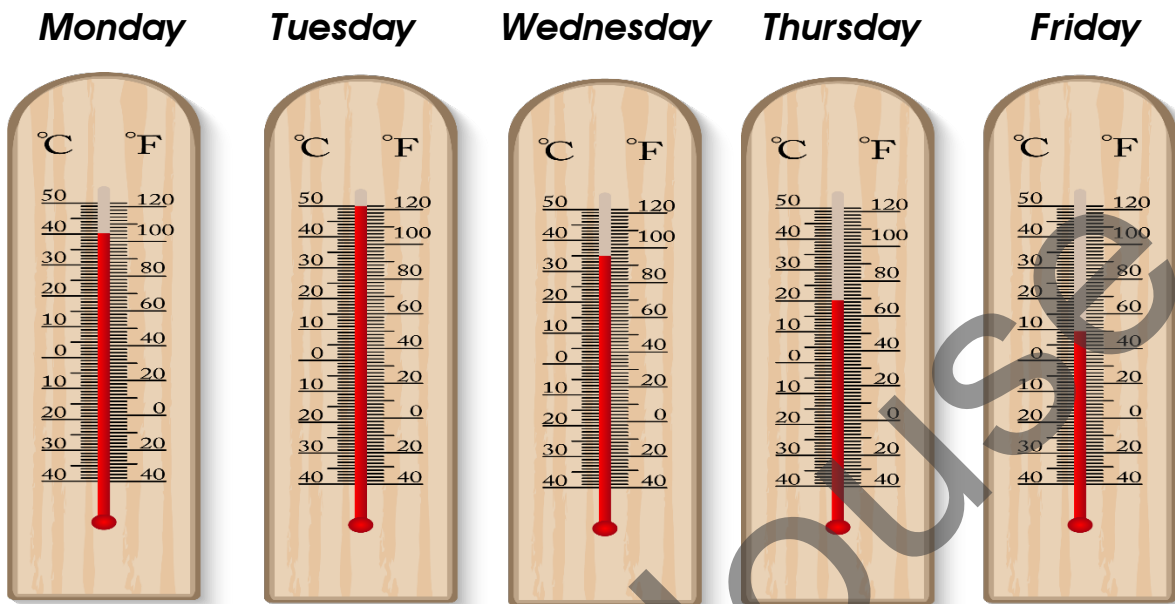
2. /



3. /



Look and answer the questions.



- a) Which day was the coldest?
- b) Which days the temperature was over 100 °F?
- c) On which day was the temperature 20°C?
- d) On which two days the temperature was below 90°F?
- e) Which day was the hottest?

Speed

Read and answer the questions.

Joe is driving to the beach. In 30 minutes he has gone 45 kilometers.

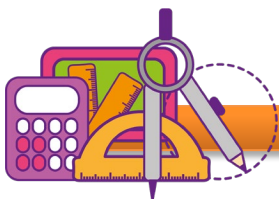
How far will he go in 5 hours?

What did you do to find the answer?

.....

.....

.....





Speed shows how fast someone or something moves. It is difficult for someone or something to keep the same speed all the time, so the AVERAGE SPEED must be used, instead.

To calculate the average speed, you need to divide the total distance travelled by the total time taken.

“We know that Joe goes 45 kilometers in 30 minutes. That means Joe has gone 90 kilometers in 1 hour. If we multiply 90 kilometers times 5 hours, it equals 450 kilometers.”



Look and complete the chart.

N.	Total distance travelled	Total time taken	Average speed
1	200 km	4 h	
2	850 km	15 h	
3	420 km		80 km / h
4		5 h	120 km / h
5	130 km		26 km / h

Read and answer the questions.

1. Gina drives 120 kilometers and the trip takes 2 hours.
What is Gina's average speed?
2. A plane flies for 8 hours. The average speed is 500 km / h.
What is the total distance?
3. Fred runs 5.30 kilometers. If he runs 1.2 km / h, what is the
total time taken?
4. A car goes 85 kilometers in 4 hours. A train goes 120
kilometers in 3 hours.
Which vehicle goes faster?





You're up!

Look and answer the questions.

	Bus A	Bus B	Bus C	Bus D
School	8:15 am	9:35 am	11:05 am	1:55 pm
Shopping Centre	8:35 am	9:50 am	11:30 am	2:15 pm
Downtown	8:45 am	10:00 am	11:40 am	2:35 pm
Airport	9:10 am	10:30 am	12:05 pm	2:45 pm

- Which is the fastest bus from school to the shopping centre?
- Which bus takes one hour from school to the airport?
- Which bus is the slowest from downtown to the airport?

Look and answer the questions.

Average maximum temperatures in Egypt

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
19°C	20°C	23°C	28°C	32°C	34°C	35°C	34°C	33°C	30°C	25°C	20°C

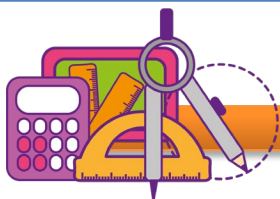
- Which is the hottest month? _____
- Which month is the coldest, September, October or November? _____
- Number the months in order of temperature, starting with the coldest. _____

Read and answer the questions.

The table below shows the distance covered by 4 cars in 2 hours.

Car	Distance
red	30 km
blue	25 km
yellow	45 km
orange	46 km

- Which car is the fastest?
- Which car is the slowest?



Volume of cuboids

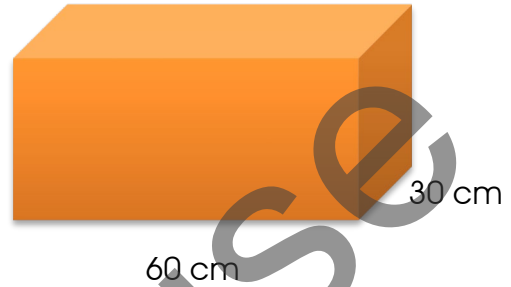


TAKE THE CHALLENGE



Look and read. Then answer the question.

How much water does Dan need to fill this tank?



Explain what you did to find the answer:

.....

.....

.....

Read and try the experiment.

VOLUME

It is the amount of space that something occupies.

CAPACITY

It is the amount of something that can be held.

To understand the relation between these concepts, try the next experiment.

Instructions:

1. Take a cuboid-shaped container and measure it with a ruler.
2. Follow the formula to get the volume.
3. Fill it with water – little by little – and see how much water it can hold.
4. Use the following information to compare the volume and the capacity of the container.

$$1 \text{ liter} = 1\,000 \text{ cm}^3$$

Formula

Length x width x height = volume of a cuboid

Report your findings:

.....

.....

.....

.....



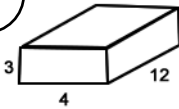


You're up!

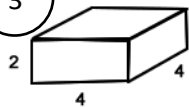
Complete the number grid by finding the volume of each shape.

Across

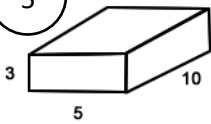
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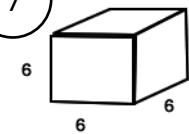
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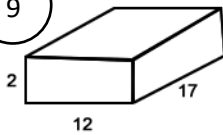
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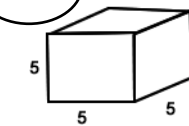
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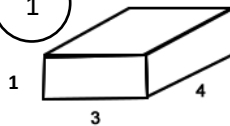


11



Down

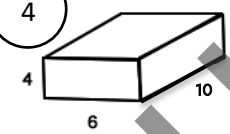
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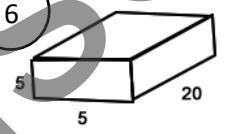
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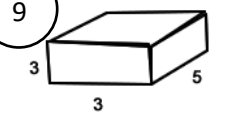
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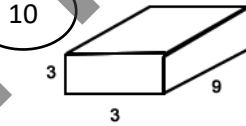
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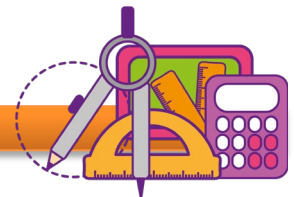
9



10



1		2		3	4
			5	6	
7	8				
			9		10
	11				





Probability



TAKE THE CHALLENGE



Read and answer the questions.

A box contains 5 blue balls, 3 red balls and 8 yellow balls.

The teacher asks Lilly to close her eyes and take a red ball from the box.

What is the probability that Lily picks a red ball?

Explain what you did to find the answer:

.....
.....
.....

Read and complete.

How many balls are there in total? _____

Since there are 16 balls, there are 16 possible outcomes. But, since there are only _____ red balls, the probability to get one is 3 out of _____.

This is how it is written:

$$P(\text{red}) = 3 / 16$$

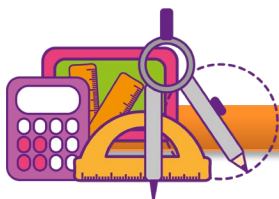
PROBABILITY

It means "Several different outcomes are possible." The probability of any specific outcome is a fraction of all possible outcomes.



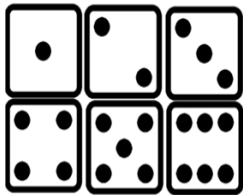
THE FORMULA

$$\text{Probability of A} = \frac{\text{Number of outcomes classified as A}}{\text{Total number of possible outcomes}}$$



Look and write.

Paula rolls a dice. What is the probability that Paula rolls an even number?



How many possible outcomes are there?

How many even numbers are there?

$P(\text{even}) =$

What is the probability that Paula rolls a number smaller than 5?

Look at the roulette.



What is the probability of getting a yellow outcome?

What is the probability of getting a red outcome?

Look at the set of cards from a bingo game.

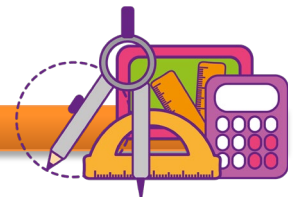
What is the probability of showing a bear card?

What is the probability of having a reptile card?

What is the probability of getting a grey animal card?

If we want to pick a bird, what is the number of desired outcomes?

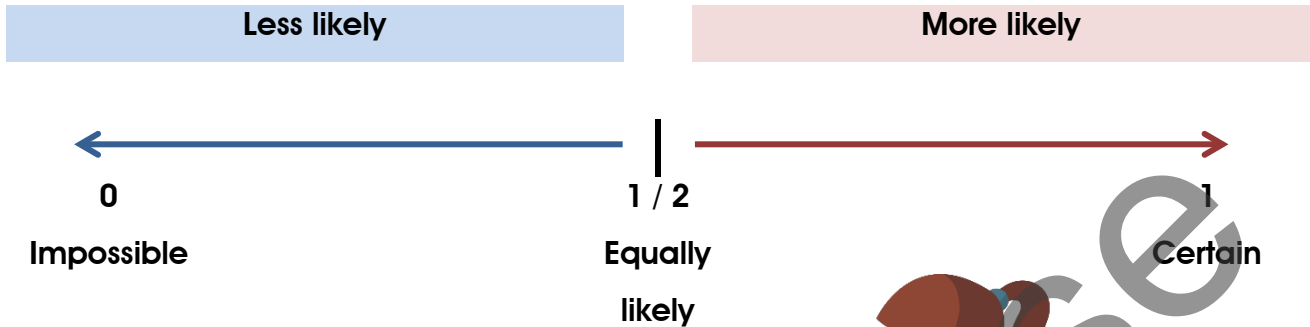
		Free Space		





Probability line

Read and complete.



From the probability line above, we can see that when a probability of an event is:

- (0) - the event is impossible.
- $\frac{1}{2}$ - the event is equally likely.
- Between $\frac{1}{2}$ and 1 - the event is likely.
- (1) - the event is certain.



Read and write.

In a vending machine there are 40 candies of four different colours: 22 are green, 8 are red, 5 are purple and 5 are yellow.

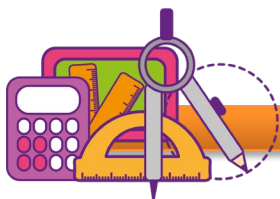
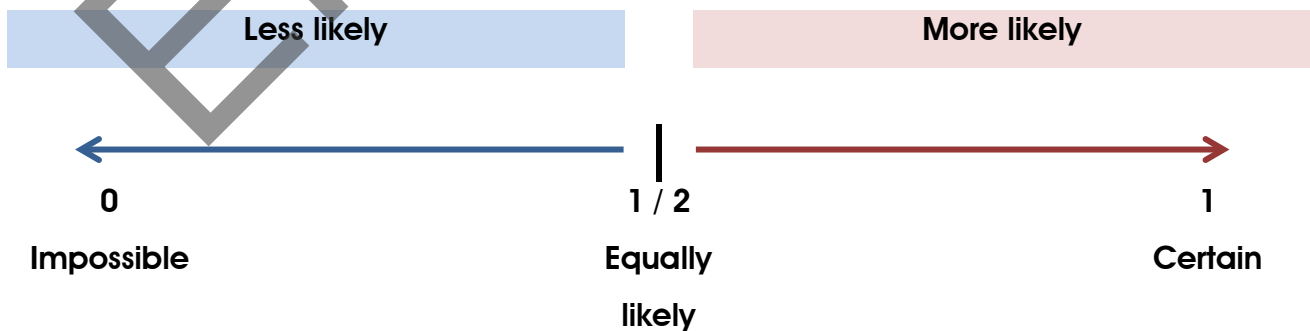
What is the probability that the next child gets a yellow candy?

Number of desired outcomes. _____

Number of possible outcomes. _____

What is the probability of getting a yellow candy? _____,

which means it is _____.



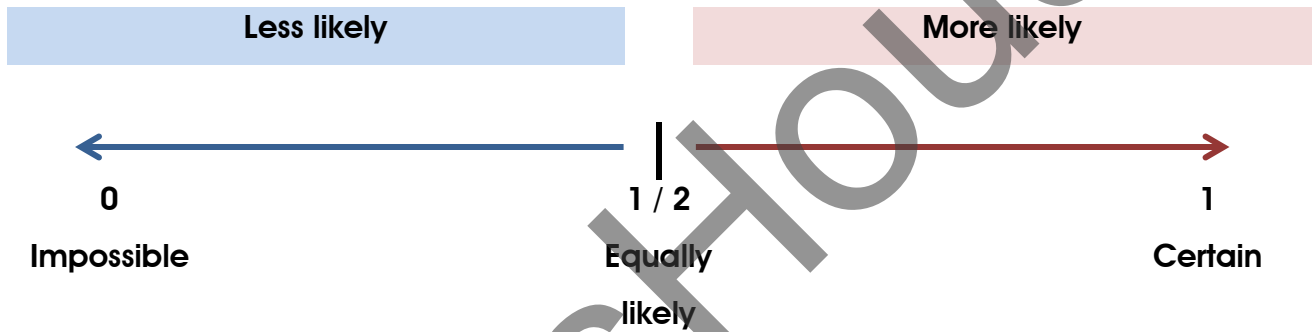


You're up!

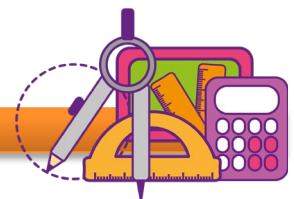
Read and write.

Instructions:

1. Get into pairs.
2. Read the questions and talk to your friend. Then roll a dice.
3. Decide on what the correct answers are and write them.
4. Talk and invent three more questions.
5. Talk and answer the questions.
6. Find the probabilities of the questions on the probability line.



- a) What is the probability of getting an even number?
- b) What is the probability of getting 4 points?
- c) What is the probability of getting an odd number?
- d) What is the probability of getting a number smaller than 7?
- e)
- f)
- g)



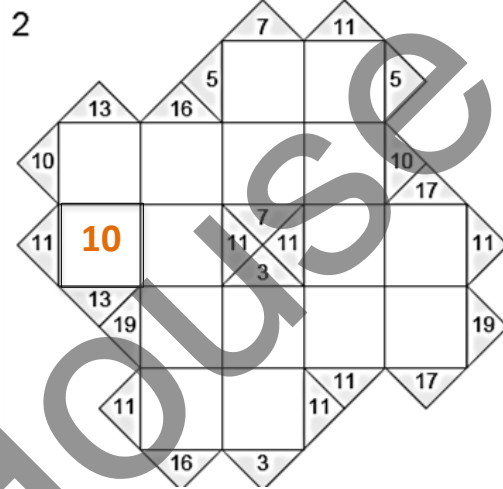
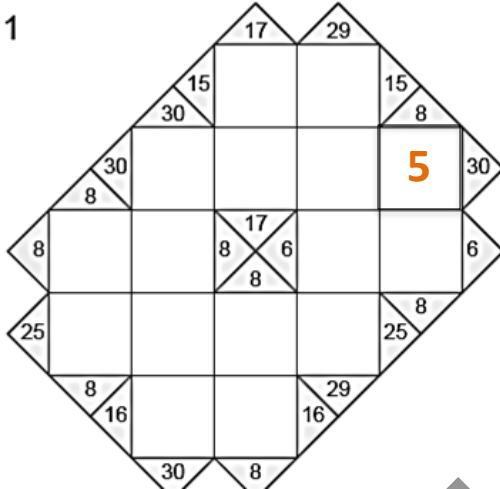
Proportional properties



TAKE THE CHALLENGE



Look at the mathematical crossword puzzles. Write numbers so that each "mathematical word" adds up to the numbers provided in the clues.



Explain your strategy.

- What is proportionality?

Proportionality is a relation between measurable quantities.

Direct proportionality is a case of linear variations. The constant factor of proportionality can be used to express the relations between the magnitudes.

- What does **Directly Proportional** mean?

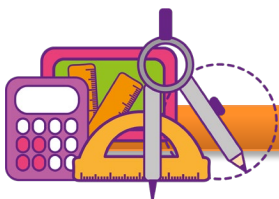
It means "as one amount increases, the other amount increases at the same rate. This is the symbol for "Directly Proportional" \propto .

- **Example:**

You learn 8 words in an hour

The number of words you learn is **directly proportional** to how many hours you study.

The more hours you study, the more words you learn; is direct proportion.





Can you read this? \longrightarrow Words learned \propto Study hours.

- If you study 2 hours, you learn
- If you study 4 hours, you learn
- If you study 6 hours, you learn
- If you study 9 hours, you learn

Constant Proportionality

It is the value that relates the two amounts:

You learn **8** words in an hour – so the constant of proportionality is **8** because:

$$\text{Learning} = 8 \times \text{Study Hours}$$

$$y = kx$$

Direct Proportionality

If a magnitude increases, so does the other one.

Magnitudes	Sodas	1	2	3	4	5
	Cost	10	20	30	40	50

Divide all the pairs of numbers to find out what the constant is.

$$\frac{10}{1} = \frac{20}{2} = \frac{30}{3} = \frac{40}{4} = \frac{50}{5} =$$

- So the constant of direct proportionality is _____.

Inversely Proportional

The more workers are in a construction, the fewer days it takes to have work done.

The fewer workers are in a construction, the more days it takes to have work done.

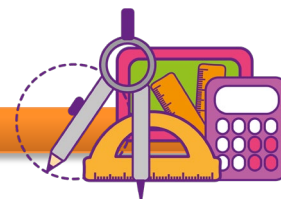
Magnitudes	Workers	1	2	3	4
	Days	60	30	20	15

Multiply all the pairs of numbers to find out what the constant is.

$$60 \times 1 = \quad \quad \quad 20 \times 3 = \quad \quad \quad$$

$$30 \times 2 = \quad \quad \quad 4 \times 15 = \quad \quad \quad$$

- So the constant of inverse proportionality is _____.





Word problem – Direct Proportionality

- A cake costs \$ _____, so how much would you pay for the other numbers of cakes?

Cakes	1	2	3	4	10	15	20	30
Cost	20	40	60	80	200	X	X	X

So the constant of direct proportionality is _____.

* 10 Cakes _____ . (Use any of the pairs of numbers in the table.)

$$10 \quad 3$$

$$--- = ---$$

$$X \quad 60$$

$$X = \frac{10 \quad X \quad 60}{3}$$

$$x = \frac{600}{3} = \boxed{200}$$

15 Cakes

20 Cakes					30 Cakes				

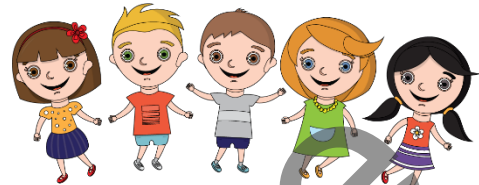




You're up!

Read and complete the tables.

The following table shows the number of boys and girls in different teams at the sports centre. Knowing that the numbers are in proportion, complete the table.



Number of boys	15		20	55		35	
Number of girls		8		44	20		4

This table shows the eggs and flour needed to bake a vanilla cake. Knowing that the ingredients are in proportion, complete the table.



Number of eggs	3	9		33		39	
Flour (kg)	0.5		1		2		2.5

This table shows the kilometers Josh ran last week. Knowing that he runs in the same pace, complete the table.



Kilometers	7	6		15		3	
Time (minutes)		39	65		26		71.5

