

The Mystery of the Last Tree to Lose All Its Leaves

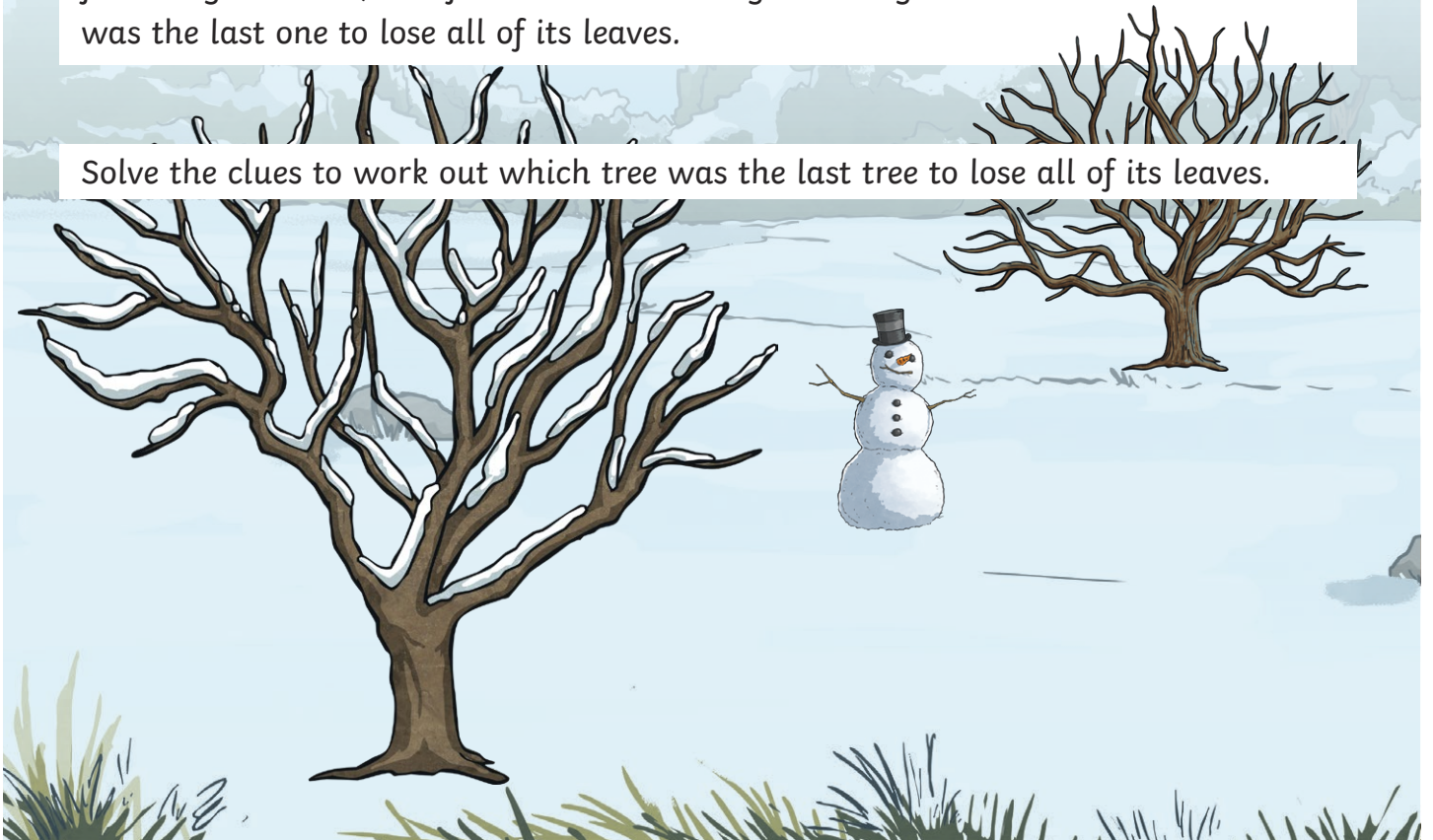
Maths Mystery Game

Winter has arrived. The temperature has dropped so people are wrapping up in warm clothes and staying inside. You notice the world around you is changing too. The days are becoming shorter and the trees are becoming very bare.

At school, you are learning all about the different types of deciduous trees so you decide to investigate which tree will be the last one to lose all its leaves. You spend time noting down all of the trees near your house that still have a few leaves remaining and begin to record when each loses its leaves.

Unfortunately, it has become too dark to go out and observe the trees in the evenings as the clocks have changed so you can only check them at the weekends. On the first weekend, many of the trees still have a few leaves left. However, by the following weekend, all of the trees are totally bare so you do not know which tree was the last one to lose all of its leaves.

Solve the clues to work out which tree was the last tree to lose all of its leaves.



Tree	Age	Location	Lesson Number	Centimetres from Nearest Tree	Average Number of Leaves in Summer
beech	51 years	woodland	2	151	21 035
ash	11 years	forest	3	152	5480
lime	6 years	field	5	624	1863
hazel	14 years	garden	1	215	30 457
larch	59 years	forest	3	145	14 314
elder	4 years	forest	4	134	4893
birch	26 years	field	2	380	21 470
sycamore	42 years	forest	5	98	15 632
yew	21 years	garden	4	144	8453
sweet chestnut	52 years	forest	2	164	13 620
oak	35 years	forest	3	158	9047
horse chestnut	31 years	woodland	4	130	24 891
walnut	1 year	woodland	1	102	130
hornbeam	8 years	forest	4	181	2784
elm	3 years	forest	5	139	294
rowan	24 years	forest	1	160	11 496
wild cherry	10 years	garden	2	513	8130
field maple	6 months	field	3	455	175
blackthorn	16 years	woodland	5	138	8513
grey poplar	40 years	forest	4	153	13 204
alder	13 years	field	1	241	3015
hawthorn	15 years	woodland	2	155	4587
apple	1 year	garden	3	324	187
white poplar	42 years	forest	5	141	15 183
willow	8 years	garden	1	648	5940

Clue 1: Sorting Prime Numbers

The Mystery of the Last Tree to Lose All Its Leaves

Sort the numbers into this Carroll diagram. Use the numbers in the shaded section to solve the first clue about the location of the tree that was the last to lose all of its leaves.

10	6	20	7	15	16	22	12
11	19	4	21	14	13	9	2
		prime numbers			composite numbers		
even numbers							
odd numbers							

9 tree	22 garden	10 been	11 in
15 has	21 planted	4 the	2 woodland
13 a	6 garden	19 forest	20 other
12 trees	7 is	16 amongst	14 countryside

Clue 1: The last tree to lose all its leaves _____.

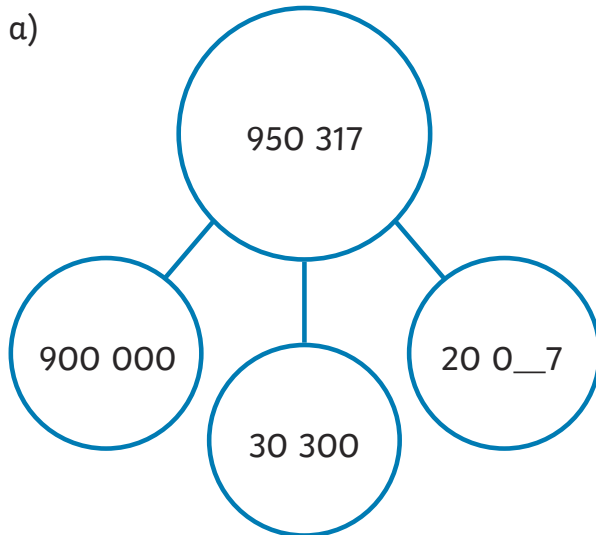
Clue 2: Partitioning Puzzle

The Mystery of the Last Tree to Lose All Its Leaves

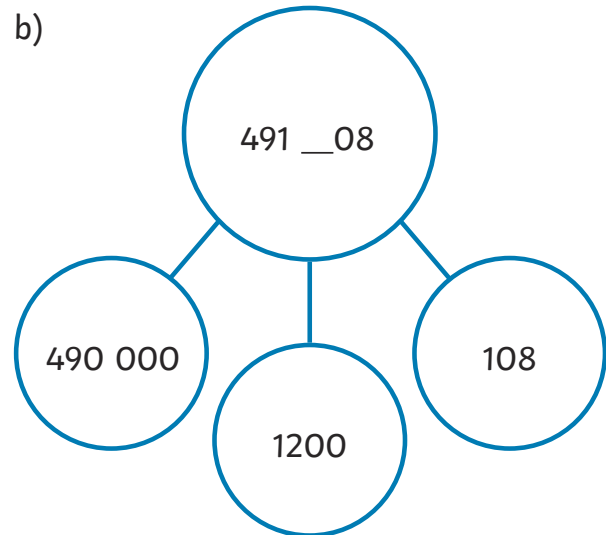
Work out the missing digits in these partitioned numbers. Substitute the digits into the clue sentence to reveal the answer to the second clue.

First Number

a)

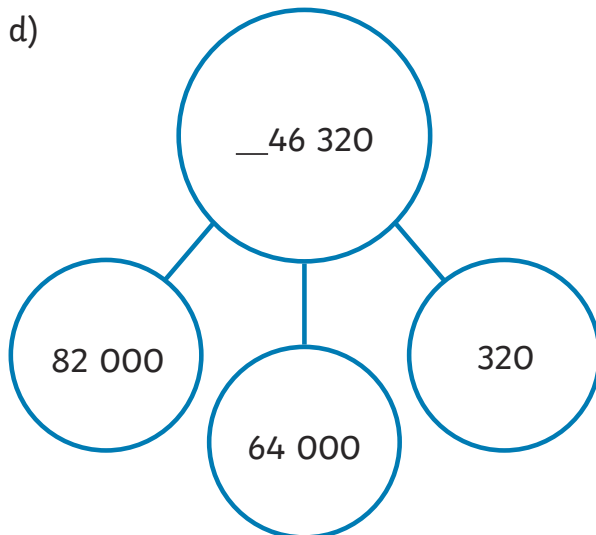


b)

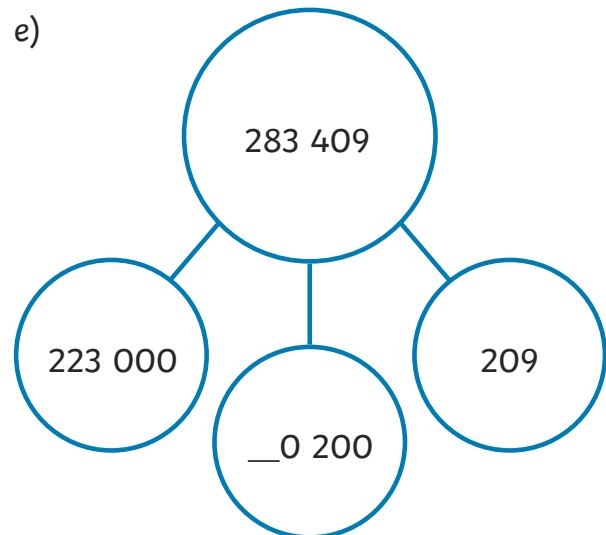


c) $698\ 324 = 600\ 000 + 9_000 + 1320 + 4$

d)



e)



f) $904\ 573 = 850\ 000 + 52\ 000 + _550 + 23$

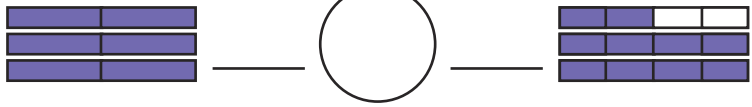
Clue 2: The last tree to lose all its leaves is between _____ and _____ centimetres from the nearest tree.

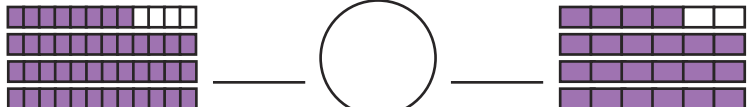
a) b) c) d) e) f)


Clue 3: Comparing Fractions

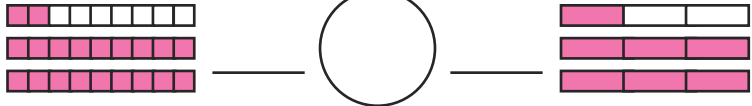
Use $<$, $>$ or $=$ to complete these number statements to compare the improper fractions and mixed numbers.

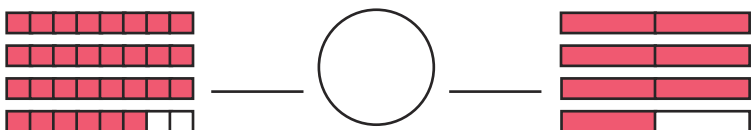
Count how many times you use the $<$ symbol. The last tree to lose all of its leaves is older than this number in years.

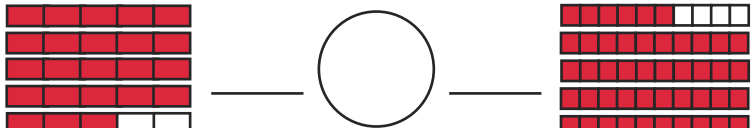
a)  _____

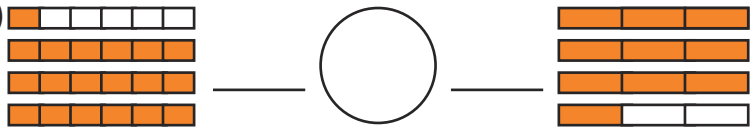
c)  _____

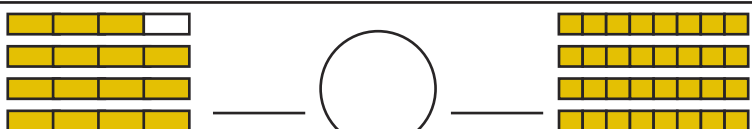
e)  _____

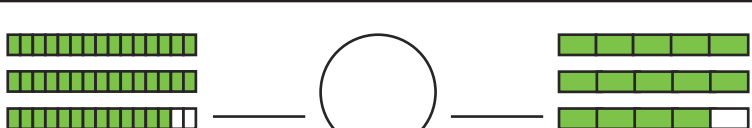
g)  _____

i)  _____

k)  _____

m)  _____

o)  _____

q)  _____

b) $4\frac{1}{2}$ ○ $\frac{10}{2}$

d) $\frac{11}{4}$ ○ $2\frac{1}{4}$

f) $6\frac{4}{5}$ ○ $\frac{68}{10}$

h) $\frac{4}{3}$ ○ $1\frac{1}{9}$

j) $3\frac{7}{10}$ ○ $\frac{19}{5}$

l) $\frac{12}{2}$ ○ $6\frac{1}{8}$

n) $5\frac{3}{4}$ ○ $\frac{69}{12}$

p) $\frac{25}{7}$ ○ $3\frac{10}{14}$


r) $2\frac{2}{18}$ ○ $\frac{17}{9}$

Clue 3: The last tree to lose all its leaves is over _____ years old.

Clue 4: Rounding to the Nearest 10, 100, 1000 and 10 000

Complete this table by rounding the numbers to the nearest multiple of 10, 100, 1000 and 10 000. Only one number rounds to the same number every time. This number will reveal the answer of the fourth clue.

Number	6270	3294	56 480	72 004	50 176	29 997
Rounded to the Nearest Multiple of 10						
Rounded to the Nearest Multiple of 100						
Rounded to the Nearest Multiple of 1000						
Rounded to the Nearest Multiple of 10 000						



The average number of leaves in summer is less than 1000.	The average number of leaves in summer is between 1000 and 3500.	The average number of leaves in summer is between 3500 and 6000.	The average number of leaves in summer is between 6000 and 8500.	The average number of leaves in summer is between 8500 and 10 000.	The average number of leaves in summer is greater than 10 000.
---	--	--	--	--	--

Clue 4: The last tree to lose all its leaves has an average number of leaves in summer

_____.

Clue 5: Correct Additions and Subtractions

The Mystery of the Last Tree to Lose All Its Leaves

Which of these addition and subtraction calculations have been completed correctly? The number of calculations with the correct answer is the lesson number in which you learnt about the type of tree which lost its leaves last.

a)

	HTh	TTh	Th	H	T	O
		4	2	9	1	5
+			6	3	6	0
		4	8	2	7	5
			1			

b)

	HTh	TTh	Th	H	T	O
		7	3	0	4	5
+		4	6	4	6	3
	1	1	9	5	0	8
				1		

c) $22\ 601 + 63\ 152 = 85\ 753$

d) $81\ 645 - 62\ 031 = 71\ 614$

e)

	HTh	TTh	Th	H	T	O
		⁵ 9	¹ 2	³ 4	¹ 1	9
-			5	1	3	3
		5	7	2	8	6

f)

	HTh	TTh	Th	H	T	O
		3	8	⁴ 9	¹ 0	5
-		1	5	9	2	0
		2	3	5	8	5

Clue 5: The lesson number in which you learnt about the type of tree which lost its leaves last was _____.

Your investigation is complete.

The last tree to lose all its leaves was the _____.