

Charity Envelopes!

- Adam, Bess and Chloe deliver charity envelopes
- They deliver to houses 1 to 50
- ADAM delivers to house numbers that are multiples of 2
- BESS delivers to house numbers that are multiples of 5
- CHLOE delivers to house numbers that are multiples of 10

BEFORE YOU BEGIN!

- Predict how many houses each person will deliver to and write your answer on the back of your sheet.

MAIN TASK:

- List each house number
- Say whether each person will deliver to that house by writing YES or NO in the column
- Be careful as some might be able to deliver to more than 1 house!

EXTENSION:

- Can you work out who would deliver to these house numbers
- 51
- 65
- 80
- 84
- 90
- 92
- 100

Answers:

I've put the answers into a grid but you should be able to mark your answers against this 😊

A = Adam B = Bess C = Chloe

House									
1		11		21		31		51	
2	A	12	A	22	A	32	A	52	A
3		13		23		33		53	
4	A	14	A	24	A	34	A	54	A
5	B	15	B	25	B	35	B	55	B
6	A	16	A	26	A	36	A	56	A
7		17		27		37		57	
8	A	18	A	28	A	38	A	58	A
9		19		29		39		59	
10	ABC	20	ABC	30	ABC	40	ABC	50	ABC

EXTENSION:

- Can you work out who would deliver to these house numbers
- 51 - no one (not a multiple of 2, 5 or 10)
- 65 - Bess only
- 80 - Adam, Bess and Chloe
- 84 - Adam only
- 90 - Adam, Bess and Chloe
- 92 - Adam only
- 100 - Adam, Bess and Chloe

Problems of the Day 2020



1 Mo has six 5p coins.

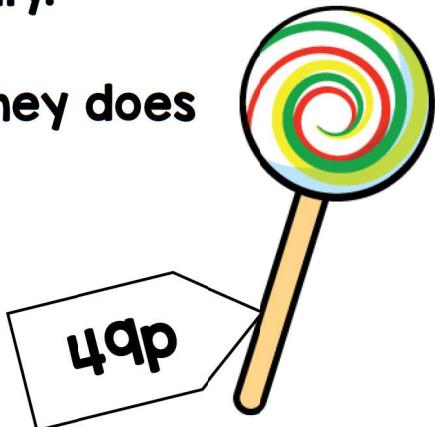


He also has five 10p coins.



He buys this lolly.

How much money does
he have left?



2 Mrs Green bakes muffins.
She sells them in her shop.



- On Monday she bakes 30 and sells 18
- On Tuesday she bakes twice as many muffins but has the same amount left.

How many muffins did she sell on
Tuesday?

Problems of the Day 2020

Day
20

1 Complete these number sentences.

$$5 + 5 + 5 + 5 = \square \times 5$$

$$2 + 2 + 2 + 2 + 2 = \square \times 5$$

$$10 + 10 + 10 = \square \times 5$$

$$5 - 5 = \square \times 5$$

2 Lou has 5 bananas.



Dan has 8 times as many.

How many bananas do they have in total?

3 A bag contains 100 counters.

Susie takes out 26 counters.

Mark takes out 39 counters.

How many counters are left in the bag?

Problems of the Day 2020

Day
20

1 Complete these number sentences.

$$25 + 25 + 25 + 25 = \square \times 25$$

$$10 + 10 + 10 + 10 = \square \times 5$$

$$25 + 25 + 25 + 25 = \square \times 5$$

$$25 + 25 + 25 + 25 = \square \times 100$$

$$25 + 25 - 25 - 25 = \square \times 25$$

2 Louise is thinking of a 4-digit number.
Here are some clues to the number.

The number lies between 4,000
and 5,000

All the digits are different

The digit in the tens place is twice
the digit in the thousands place

The sum of the digits is 24

The number is odd

What could Louise's number
be?

Problems of the Day 2020



- 1 The diameter of a 10p coin is 24.5 mm.
The diameter of a 5p coin is 18 mm.
Some coins are laid out end to end.



What is the distance marked *b* in the diagram?

- 2 Mrs Green bakes muffins.
She sells them in her shop.



- On Monday she bakes 200 and sells 70% of them.
- On Tuesday she bakes twice as many muffins but has the same amount left.

What percentage of the muffins did she sell on Tuesday?

Answers to Problem Solving Tasks

First Page

1. Mo has 80p all together. He buys the lolly for 49p, so has **31p** left.
2. On Tuesday, Mrs Green bakes twice as many muffins, so $30 + 30 = 60$ in total. She has 18 left, so the sum we need to do is $60 - 18$ to show us how many muffins she has left. The answer is **42** muffins.

Second Page

1. Completing number sentences:

$$5 + 5 + 5 + 5 = \boxed{4} \times 5 \text{ - there are four lots of five}$$

$$2 + 2 + 2 + 2 + 2 = \boxed{2} \times 5 \text{ - there are five twos}$$

$$10 + 10 + 10 = \boxed{6} \times 5 \text{ - ten plus ten plus ten is 30 and 30 is also } 6 \times 5$$

$5 - 5 = \boxed{0} \times 5$ - five minus 5 is zero so the only number $\times 5$ that gives the answer zero, is zero!

2. Lou has 5 bananas and Dan has 8 times as many

$$5 \times 8 = 40$$

To get the answer you need to add Lou's 5 to Dan's 40

$$5 + 40 = \boxed{45}$$

3. There are 100 counters and we take away 26 first and then 39. You can add the 26 and 39 and take them away in one go :

$$26 + 39 = 65$$

$$100 - 65 = \boxed{35}$$

Or take them away in two goes:

$$100 - 26 = 74$$

$$74 - 39 = \boxed{35}$$

Third Page

1. Complete these sentences:

$$25 + 25 + 25 + 25 = \boxed{4} \times 25$$

$10 + 10 + 10 + 10 = 8 \times 5$ - work out what four lots of 10 is (40) and then you can work out how many 5's that is.

$25 + 25 + 25 + 25 = 20 \times 5$ - again work out what four lots of 25 is (100) and then you can complete the sum.

$25 + 25 + 25 + 25 = 1 \times 100$ - same here

$25 + 25 - 25 - 25 = 0 \times 25$ $25 + 25 - 25 - 25 = 0$ so the only number $\times 25$ to make a zero is zero itself!

2. What do we know -

Louise is thinking of a 4 digit number that is between 4000 and 5000

All the digits are different

The digit in the tens place is twice the number in the thousands place

The sum of the digits is 24

The number is odd

I have used a grid here to make it easier to follow:

Th	H	T	O	notes
4		8		The number in the tens is twice the number in the thousands. The number in the thousands can only be 4 or 5 because of the first clue. If you double 5 you get 10 which is two digits so it has to be 4 in the thousands and 8 in the tens.
4		8		The sum of all the digits is 24 so if we have 4 and 8 already, we have 12 left for the other digits. What two single digit numbers can you add to make 12? $3 + 9$, $4 + 8$, $5 + 7$, $6 + 6$. We can dismiss $4 + 8$ and $6 + 6$ as the digits all need to be different, plus the number is odd and they would all give an even number in whatever combination.
4	3	8	9	Through working with the clues, these are the only numbers she could be thinking of. Did you get any of them?
4	9	8	3	
4	5	8	7	
4	7	8	5	

Fourth page

1. Diameter is a straight line that passes through the centre of a circle - so a line that cuts a circle exactly in half. To solve this problem we need to do a few things.

Firstly, we know the coins in both lines are laid out next to each other. We know the distance across each coin - the diameter - so we can work out the length of each line of coins:

10p is 24.5mm diameter and there are four 10ps so

$$24.5 + 24.5 + 24.5 + 24.5 = 98\text{mm} \quad \text{or } 24.5 \times 4 = 98\text{mm}$$

5p is 18mm diameter and there are five 5ps so

$$18 \times 5 = 90\text{mm} \quad \text{or } 18 + 18 + 18 + 18 + 18 = 90\text{mm}$$

The problem though is to find the length of 'b' - because we know how long the two lengths of coins are we can find b by doing $98\text{mm} - 90\text{mm} = 8\text{mm}$

2. The first thing we need to work out is how many muffins Mrs Green sells on Monday. We know she bakes 200 and sells 70% of them. Percent means 'out of a hundred' so I would work this out by saying if 70% of 100 is 70 then 70% of 200 is 140.

(the sum you are doing is what's $\frac{70}{100}$ of 200?)

On Tuesday, she bakes twice as many muffins - so $200 \times 2 = 400$, and has the same number left over. If she sold 140 of 200 on Monday, she had 60 left. So on Tuesday she sells 340 and has 60 left over.

We need to work out what is 340 as a percentage of 400... to do this you need to do this sum:

$340 \div 400 \times 100$ - you will need a calculator for this one but the answer is 85, so 85% of cakes are sold on the Tuesday.

Tricky word problems

Have a go! Answers and explanations are attached ☺

1. If 2 cds and 3 tapes cost £51, and 2 cds and 5 tapes cost £65, what is the cost of 1 tape?

2. If a shirt and tie cost £45, a shirt and jacket cost £155, and a jacket and a tie cost £120, what is the cost of the shirt?

3. If 2 cheese and tomato pizzas and one garlic bread cost £10.60, and one cheese and tomato pizza and 2 garlic breads cost £6.50, what is the total cost of 1 cheese and tomato pizza and 1 garlic bread?

4. 8 bolts and 6 nuts weigh 138 grams. 3 bolts and 5 nuts weigh 71 grams. Work out the weight of the following:-
(a) 4 bolts and 3 nuts
(b) 11 bolts and 11 nuts
(c) 3 bolts and 3 nuts
(d) 1 bolt

5. The last part of a telephone number has four digits, e.g.
7814 1487 2103 2772
The last part of the telephone number can start with any digit apart from zero.
The other three digits can be any number. How many four digit numbers are there?

6. In a shop, pens cost 45p each and pencils cost 16p each. What is the total number of pens and pencils that I can buy for exactly £2.60?

Answers – please check and correct anything you may need to.

1. If 2 cds and 3 tapes cost £51, and 2 cds and 5 tapes cost £65, what is the cost of 1 tape?

First subtract 51 from 65 to find out what 2 tapes cost. Then divide your answer by 2, to find out what one tape costs.

$$65 - 51 = 14$$

$$14 \text{ divided by } 2 = 7$$

Therefore one tape costs £7.

2. If a shirt and tie cost £45, a shirt and jacket cost £155, and a jacket and a tie cost £120, what is the cost of the shirt?

2 shirts, a tie and a jacket cost £155 + £45 = £200

$$2 \text{ shirts} = £200 - £120 = £80$$

$$1 \text{ shirt} = £80 \text{ divided by } 2$$

$$1 \text{ shirt} = £40$$

3. If 2 cheese and tomato pizzas and one garlic bread cost £10.60, and one cheese and tomato pizza and 2 garlic breads cost £6.50, what is the total cost of 1 cheese and tomato pizza and 1 garlic bread?

3 cheese and tomato pizzas and 3 garlic breads will cost £10.60 + £6.50 = £17.10

1 cheese and tomato pizza will cost £17.10 divided by 3 = £5.70

4. 8 bolts and 6 nuts weigh 138 grams. 3 bolts and 5 nuts weigh 71 grams. Work out the weight of the following:-

(a) 4 bolts and 3 nuts

(b) 11 bolts and 11 nuts

(c) 3 bolts and 3 nuts

(d) 1 bolt

(a) 4 bolts and 3 nuts is exactly half of 8 bolts and 6 nuts which we know weigh 138 grams. Therefore 4 bolts and 3 nuts = 138 grams divided by 2 = 69 grams.

(b) 11 bolts and 11 nuts is both the examples above added together because we have 8 bolts and 3 bolts = 11 bolts, and 6 nuts and 5 nuts = 11 nuts. Therefore 11 bolts and 11 nuts = 138 grams + 71 grams = 209 grams.

(c) To find out the weight of 3 bolts and 3 nuts we first need to find out the weight of 1 bolt and 1 nut. We know from our answer to (b) that 11 bolts and 11 nuts = 209 grams. Therefore 1 bolt and 1 nut = 209 divided by 11 = 19 grams. Therefore 3 bolts and 3 nuts = 19x3 = 57 grams.

(d) We know from our answer to (a) that 4 bolts and 3 nuts = 69 grams. we know from our answer to (c) that 3 bolts and 3 nuts = 57 grams. Therefore 1 bolt = 69 grams - 57 grams = 12 grams.

5. The last part of a telephone number has four digits, e.g.

7814 1487 2103 2772

The last part of the telephone number can start with any digit apart from zero.

The other three digits can be any number. How many four digit numbers are there?

First number of the 4 could vary between 9 numbers - 1,2,3,4,5,6,7,8 or 9.

If number begins with 1, the second number could be 1 out of 10 numbers -
10,11,12,13,14,15,16,17,18,19.

So variation for 2 numbers beginning with 1 is 10.

If third number has a variation of 10 then each number above eg 10, 11, 12, 13 etc has
a variation of 10 eg 101, 102, 103.

So for 3 numbers:-

Total number = $1 \times 10 \times 10$

Same for 4th number. So if number begins with 1, the variations are $1 \times 10 \times 10 \times 10 = 1000$

But there are 9 different ways of starting the number so total = $9 \times 1000 = 9000$

6. In a shop, pens cost 45p each and pencils cost 16p each. What is the total number of pens and pencils
that I can buy for exactly £2.60?

Add 45p and 16p = 61p

Then 260 divided by 61 = 4 remainder 16.

Therefore answer = 4 of each plus an extra 16p which is an extra pencil.

Answer = 4 pens and 5 pencils.