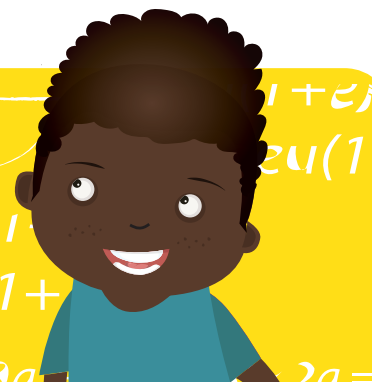# PROBLEM SOLVING

Julian was doing his homework. His brother was helping him.

Julian said, "If you add an odd number to an even number, the answer is always odd."
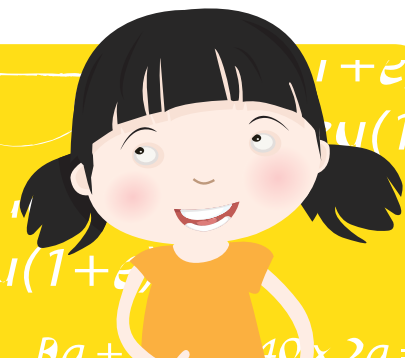
"How do you know that?" asked his brother.

"Because 3 + 6 = 9. The number 3 is odd. 6 is even. 9 is odd. That means it always works."

Is Julian right? Is this statement always true? Why or why not?

PROBLEM SOLVING

Mei is playing a lucky numbers game. She must pick three numbers out of a bag.

The numbers in the bag are: 12, 8, 15, 2, 11 and 9.

Mei will win a prize if the three numbers add up to a number less than 20; if the three numbers add up to a multiple of five; or if the three numbers add up to a number greater than 30.

List some winning combinations of numbers.

PROBLEM SOLVING

George has chosen a random card from a pack of number cards.
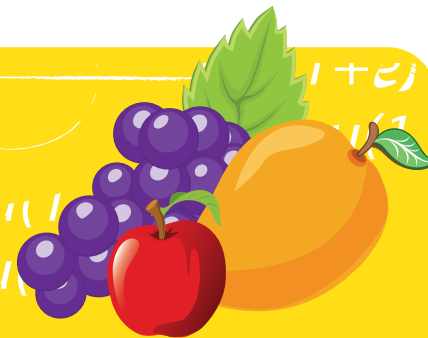
His number is even.

His number is less than 180 but greater than 120.

His number is a multiple of 2, but does not end in a 4 or an 8.

List some of the possible numbers that could be on George's card.

PROBLEM SOLVING

Ask ten friends to name their favourite fruit.

Write up a tally which shows the number of votes each fruit received.

Represent this information using three different types of graphs.

Which of your three graphs is the best choice for displaying your data? Why?

Write some questions about your data.

PROBLEM SOLVING

Pedro's grandmother has made 32 cookies for Pedro to share equally with some friends.

How many friends could Pedro share his cookies with?

How many cookies would each friend receive?

List some possibilities.

Make sure every friend receives the same number of cookies.

PROBLEM SOLVING

Jordan and Jessica were having a conversation during the lunch break.

Jessica said to Jordan, "I hope Miss Smiley lets us go home early today."

Jordan replied, "That would never happen! It's impossible!"

Do you think that this is an impossible event? Why or why not?

Make a list of some other events that could be called 'impossible'.

PROBLEM SOLVING 123

Choose three digits between 1 and 9.

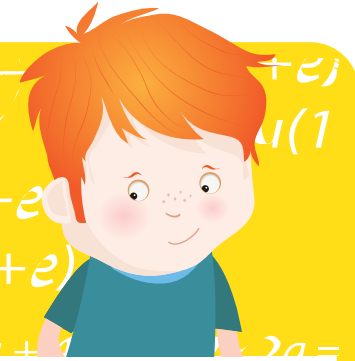Create as many numbers involving decimals as you can, using these three digits.

Write your numbers in ascending and descending order.

Place your numbers on a number line.

Draw a picture which represents each decimal.

PROBLEM SOLVING

Henry is at the toy store. He has $10 to spend on a gift for his little brother.

Toy trains cost $5.00. Balls cost $2.50. Building blocks cost $4.50.
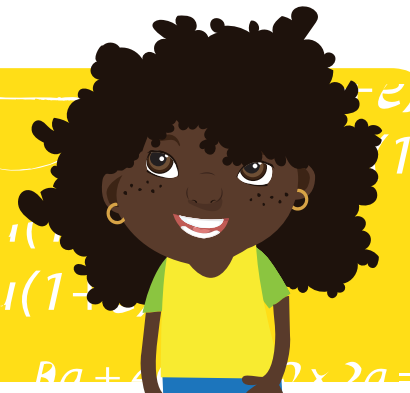
List some different gift combinations that Henry could buy.

Calculate the total amount Henry would pay for each combination, as well as any change he might receive.

PROBLEM SOLVING

Alexia is having a dinner party. She has invited 24 friends.

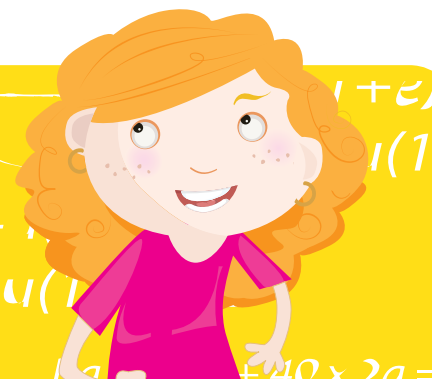Alexia must organise the tables and chairs.

There must be no less than 2 people and no more than 6 people at each table.

Draw some possible table plans for Alexia's dinner party.

There does not need to be the same number of people at each table.

PROBLEM SOLVING

Susie was tracing over the letters of the alphabet in her workbook.

"This letter is symmetrical!" she called out suddenly. "You can draw a line down the middle and it looks exactly the same on both sides!"
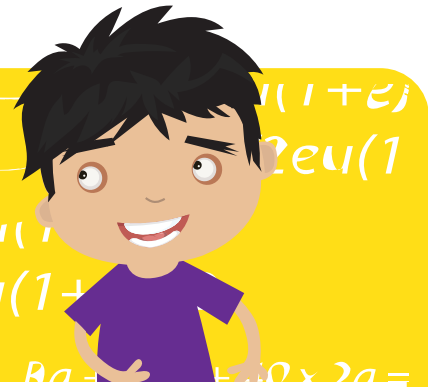
Which letter of the alphabet could Susie have been tracing at that moment?

Draw some possibilities and show the line of symmetry.

PROBLEM SOLVING

Terry has four coloured scarves in a bag.

In the bag, there are 2 red scarves, 1 yellow scarf and 1 blue scarf.

Terry randomly pulls out one scarf for himself, one for his brother and one for his sister.

What coloured scarves might Terry have pulled out of his bag?

List some possible combinations.

PROBLEM SOLVING

Lee is thinking of a four-digit number between 3000 and 3500.

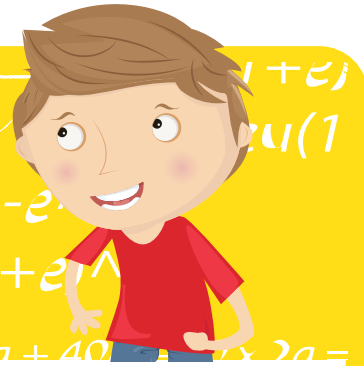The digit in the units column is the same as the digit in the hundreds column.

The digit in the thousands column and the digit in the tens columns are both odd.

Every digit in the number is a multiple of 3.

List some of the possible four-digit numbers that Lee is thinking of.

PROBLEM SOLVING

Andrew has $2.45 in his pocket.

He has a combination of notes and coins.

What notes and coins might Andrew have in his pocket?

List some possibilities.

Choose three of these possibilities to draw.

PROBLEM SOLVING

The answer to a division sum is 5.

What could the division sum be?

List some possibilities.

Draw pictures to represent each of these sums.

PROBLEM SOLVING 123

Choose four different digits between 1 and 9.

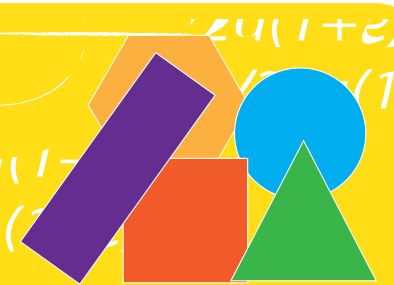How many possible numbers can you make using these digits?

Write your numbers in ascending and descending order.

What is the difference between the largest and smallest numbers?

Write a word problem involving some of your numbers.

PROBLEM SOLVING

Dan has some 2-D shapes. He wants to use them to draw a creative picture.

Dan has 2 circles, 4 rectangles, 2 triangles and 1 square.

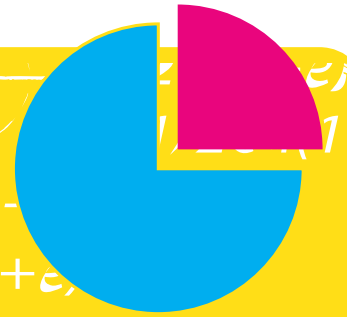Sometimes, Dan uses all of the 2-D shapes in his drawing.

Other times, he chooses only some of the shapes to use.

Draw some creative pictures using Dan's shapes.

PROBLEM SOLVING

Using the numbers 1, 2, 4, 5 and 10, create at least five different fractions.

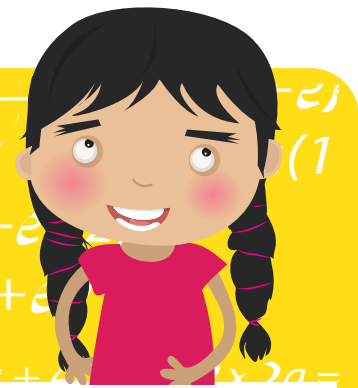Try and create an equivalent fraction for each.

Write your fractions in ascending and descending order.

Place your fractions on a number line between 0 and 1.

Draw a picture which represents each fraction.

PROBLEM SOLVING

Molly is moving around the furniture in her bedroom.

The bed must be placed under the window, but away from the door.

The desk must be against the wall, but away from the window.

The lamp must be next to the desk, but away from the bed.

Draw a plan of what Molly's bedroom could look like.

PROBLEM SOLVING

Katie's class are going on a school outing. There are 32 students in her class.

The students must be placed in small groups during the outing.

There must be no less than 2 and no more than 12 students in each group.

How many groups could there be? How many students would be in each group?

List some possibilities.

PROBLEM SOLVING X

The answer to a multiplication sum is 72.

What could the multiplication sum be?

List some possibilities.

Draw pictures to represent each of these sums.