

Non-Routine Questions 1

NOTES

Heuristics: Act It Out

Act It Out is a problem-solving strategy that allows one to visualise a problem through the use of physical objects. You will play a more active role in solving the problem by manipulating these objects.

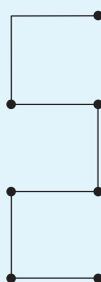
The main advantage of using this strategy is the mobility of information in the process of solving the problem. When you make a wrong step in the process, you can retrace the step without erasing or cancelling it.

The other advantage is that this strategy helps develop a better understanding of the problem and solution through visual objects or images. In this way, you will be able to remember how to solve such problems vividly.

Some of the commonly used objects for this strategy are matchsticks, straws, cards, strings, water, sand, pencils, paper and even dice.

Look at the problem below.

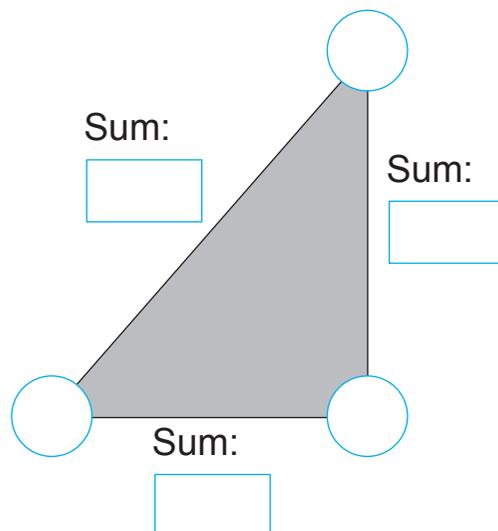
How can you make two identical squares by moving only two matchsticks?



Can you solve the problem using the Act It Out strategy?

Do these questions on another piece of paper.

1. Guess a 3-digit number based on the given hints.
 - The first digit is greater than 7 and is an even number.
 - The second digit is smaller than 7 and is the smallest odd number.
 - The third digit is the difference between the first and the second digits.
2. Benny bought a skateboard at \$126. He paid the shop assistant the exact amount with seven pieces of dollar notes. All the seven pieces of dollar notes were even numbers. Identify all the dollar notes that he used to pay for the skateboard.
3. Jessica has twice as many apples as Kelly. Kelly has thrice as many apples as Gina. Gina has 2 apples. Draw a model and find the number of apples Jessica has.
4. Fill in each blank with numbers 2, 3, 4, 5, 6 and 7 so that the sum of the numbers along each side is consecutive.



5. Mr David's mass is a 2-digit number. The first digit is three times the second digit. Both digits are odd numbers. What is Mr David's mass if his mass is above 35 kg?

6. The sum of two facing pages of a dictionary can be divided by 3. The result of the division is 3. What are the two facing pages?
7. Jonathan, Jason and Jim each has a ruler. Jason's ruler is longer than Jonathan's but shorter than Jim's. Who has the shortest ruler?
8. Natalie had a box of marbles. Her mother gave her twice the number of marbles that she had. Her father then gave her thrice the number of marbles that her mother had given her. She had 27 marbles in the end. How many marbles did she have at first?
9. Simon had a dollar note. He used it to buy a bowl of noodles for \$2 and received the change in four similar dollar notes. What was the dollar note that Simon had at first?
10. The sum of three consecutive numbers is 9. What are the three numbers?
11. The sum of two facing pages of a comic book can be divided by 3. The result is 7. What are the two facing pages?
12. Grace is heavier than Glen but lighter than Geraldine. Who is the heaviest among the three children?