

Non-Routine Questions 2

NOTES

Heuristics: Making Supposition

Making a supposition is commonly known as making an assumption. We can use this heuristics to solve mathematical word problems. In fact, making an assumption can be useful when tackling certain mathematical word problems. Firstly, making an assumption will eliminate some possibilities. Secondly, it will simplify the mathematical word problems by providing a fixed boundary of values to work within.

Study the following mathematical word problems.

Mathematical word problem 1

Mrs Jackson bought 100 candies for all the students in her class. How many candies would each student receive if there were 25 students in her class?

In the above mathematical word problem, we assume that each student received the same number of candies. This eliminates the possibilities that some students would receive more than others due to good behaviour, better results or any other reasons.

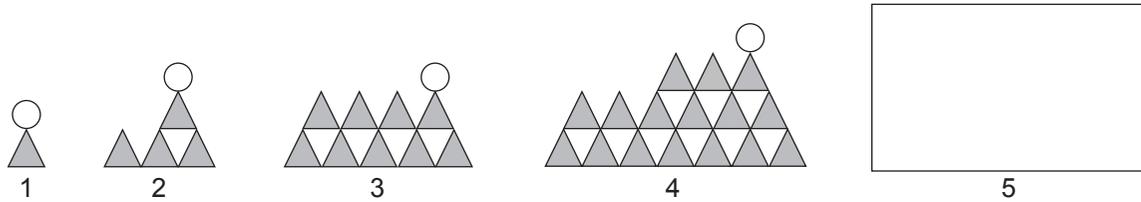
Mathematical word problem 2

Christopher drives to his office at 8 am every morning. He drives at a speed of 90 km/h and takes 45 minutes to arrive at the office. His colleague, who lives next door to Christopher, leaves for work 15 minutes after Christopher leaves. At what speed does his colleague drive if he reaches the office the same time as Christopher?

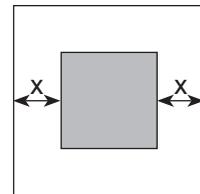
In this mathematical word problem, we have to assume that Christopher drives at a constant speed throughout the journey. Hence making such an assumption will simplify the mathematical word problem so that we have a boundary of values to work within.

Do these questions on another piece of paper.

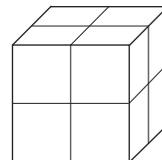
1. Study the pattern carefully and draw the correct shape in the given box.



2. A group of students were told that they would have their afternoon break when the hour hand and minute hand formed a right angle on the clock. If the minute hand pointed to 12, what was the time of their afternoon break?
3. Two similar television sets and one DVD player cost \$919.70. One such television set and two similar DVD players cost \$639.70. How much do three such television sets cost?
4. The area of the bigger square is 576 cm^2 . The area of the shaded square is 144 cm^2 . Find the length of x .

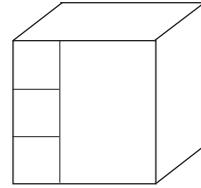


5. Several 3-cm cubes are arranged to form a solid as shown below. Find the total perimeter of all the faces of the solid.



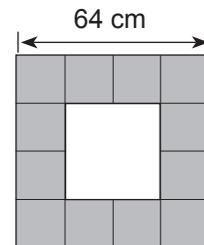
6. Mrs Beck sold thrice more lemon tea on Saturday than on Monday. She sold 5 times more lemon tea on Sunday than on Monday. If Mrs Beck sold 2 litres 600 millilitres more lemon tea on Sunday than on Saturday, how much lemon tea did Mrs Beck sell over the weekend?

7. How many 1-cm cubes are needed to make this 3-cm solid?



8. Three similar books and two similar dictionaries cost \$85.50.
One set of book and dictionary costs \$37.80.
How much does each book cost?

9. The length of the bigger square is 64 cm. Find the area of the unshaded square.



10. Circle the letter(s) that is/are **not** symmetric.



11. How many 5-cm cubes are needed to form a solid of 3125 cm^3 ?
12. Keith took an hour to paint 5 similar chairs. If he worked 8 hours a day, how many days did he use to paint 120 similar chairs?