

What number makes sense?

In "What number makes sense?" pupils are presented with a mathematics version of a cloze passage, which many pupils would be familiar with in their Language lessons. Pupils are presented with problem situations from which numerical data is missing. A set of numbers is provided and pupils determine where to place each number so that the situation makes sense. The steps given as part of the problem sheet help to focus the pupils on the steps they need to take and also explain their thinking. The teacher must ensure that group interaction followed by class discussion occurs so that pupils have the opportunity to explain their thinking and also learn of ways of solving problems that differ from their own. As pupils work through tasks of this nature, they practice computation and increase their repertoire of problem-solving skills. Reasoning skills are improved by being exposed to a variety of ways to solve a problem (Krulik and Rudnick, 2001). Such a task can be very easily crafted from a typical textbook question. Two examples follow.

EXAMPLE 1

A typical textbook question:

A box contained 42 apples. 12 of them were green and the rest were red.
Find the ratio of the number of green apples to the number of red apples.

What number makes sense?

Read the problem. Look at the numbers in the box.

Put the numbers in the blanks where you think they fit best.

Read the problem again, do the numbers make sense?

Apples in a box

Mary bought a box of red and green apples.

The box has _____ apples. There are more red apples than green.

There are _____ red apples and _____ green apples.

The ratio of the red apples to the green apples is _____ : _____ .

2	5	12	30	42
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EXAMPLE 2

A typical textbook question:

I have a rectangular study table.
 The length is 80 cm and the breath is 60 cm.
 I also have a rectangular exercise book.
 The length is 16 cm and the breath is 15 cm.
 How many exercise books do I need to cover the top of my table?

What number makes sense?

Read the problem. Look at the numbers in the box.
 Put the numbers in the blanks where you think they fit best.
 Read the problem again, do the numbers make sense?

My study table

My study table has a rectangular table-top.

It is _____ cm long and _____ cm wide.

The area of the table-top is _____ cm^2 .

My exercise book is rectangular in shape too.

It is _____ cm long and _____ cm wide.

To completely cover the top of my table with exercise books,

I need _____ exercise books.

15 16 20 60 80 4800



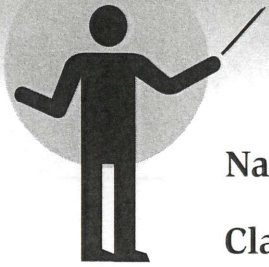
Teaching Goal

After participating in this lesson, pupils will be able to solve the problems by identifying and accurately placing the missing information. Pupils will also be able to explain their reasoning and justify their answers.

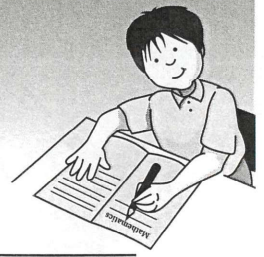


Teaching Plan

1. Present the problem to the pupils.
2. Have pupils read the problem individually.
3. Ask pupils to think about the problem. Ask what they think they need to do to solve it.
4. Engage the class in a whole-group discussion. You may ask the following questions?
What problem solving strategy would you use to decide where to place the numbers?
[Use logical thinking, guess and check, use number sense]
What number makes the most sense for larger and smaller quantities, objects and ratios?
, etc....
5. Give pupils time to complete the problem.
6. Ask a few pupils to present their solutions.
7. Engage the whole class in explaining the reasoning underlying the choices of answers. Ask pupils which math operation, concept would you use to check that your choices for the various blanks are correct?



What number makes sense?



Name: _____ Date : _____

Class : _____ Levels 3 - 6

1

Topic: Numbers to 10 000

Read the problem. Look at the numbers in the box.

Put the numbers in the blanks where you think they fit best.

Read the problem again. Do the numbers make sense?

The party

There were _____ children at a party.

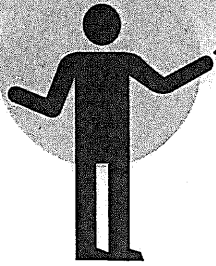
Ms Sally bought _____ packets of sweets.

There were _____ sweets in each packet.

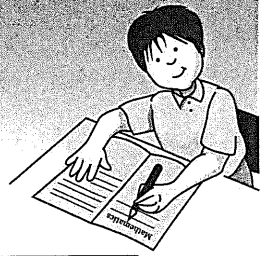
During the party, she gave _____ sweets to each child and had none left.

32	2	80	5
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Adapted from : Shaping Maths (Activity book 3A Part 2, Q4, p22)
by Pearly Tan



What number makes sense?



Name: _____ Date : _____

Class : _____ Levels 4 - 6

2

Topic: Fractions

Read the problem. Look at the numbers in the box.

Put the numbers in the blanks where you think they fit best.

Read the problem again. Do the numbers make sense?

Jelly beans

There are _____ jelly beans in a bag.

There are more blue jelly beans than green jelly beans. _____ of the jelly beans are blue while _____ of the jelly beans are green.

There are _____ more blue jelly beans than green jelly beans.

$\frac{1}{8}$

56

$\frac{7}{8}$

42

Adapted from : Shaping Maths (Course book 4A, Q12, p69)
by Evelyn Seck



What number makes sense?



Name: _____ Date : _____

Class : _____ Levels 5 - 6

3

Topic: Graphs

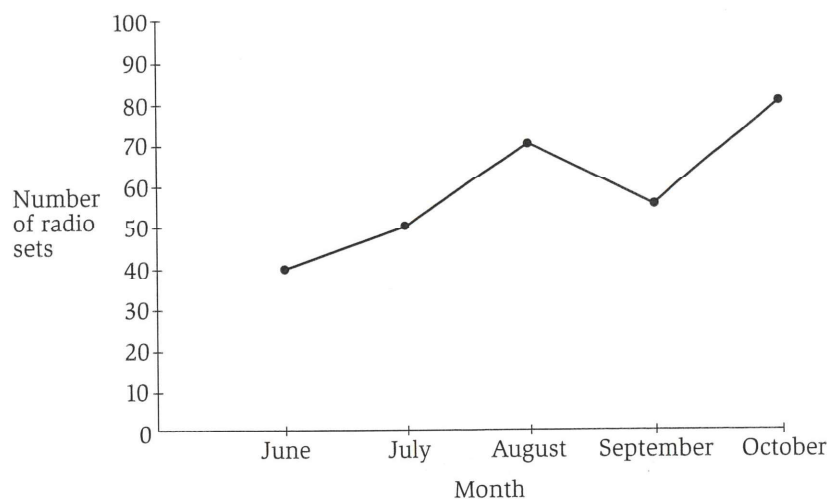
Read the problem. Look at the numbers in the box.

Put the numbers in the blanks where you think they fit best.

Read the problem again. Do the numbers make sense?

Radio sets for sale

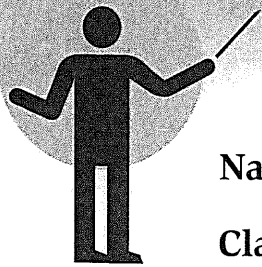
The line graph below shows the monthly sales of radio sets by an electrical shop from June to October.



The highest number of radio sets sold was _____ and the lowest number of radio sets sold was _____. There was an increase of _____ radio sets sold from September to October. On the other hand, there was a decrease of _____ radio sets sold from August to September. Over the 5-month period, the electrical shop sold a total of _____ radio sets. The average number of radio sets sold each month was _____.

15	25	40	59	80	295
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Adapted from : In Step Maths (Work book 5B Part 2, Q3, p3)
by Lim Siew Choo & Carmen Fernando



What number makes sense?



Name: _____ Date : _____

Class : _____ Levels 5 - 6

4

Topic: Area and Perimeter

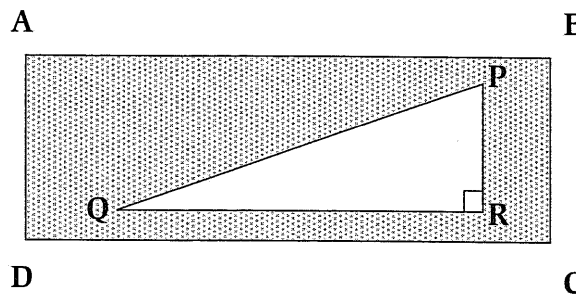
Read the problem. Look at the numbers in the given box.

Put the numbers in the blanks where you think they fit best.

Read the problem again. Do the numbers make sense?

The shaded area

The figure below , drawn to scale, shows a right-angled triangle PQR in a rectangle ABCD.

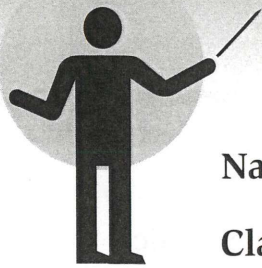


Rectangle ABCD is _____ cm long and _____ cm wide.

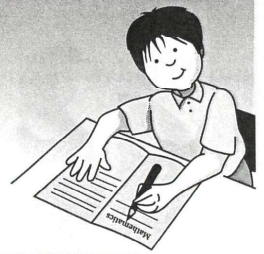
Area of rectangle ABCD is _____ cm^2 . Triangle PQR, has a base of _____ cm and height of _____ cm. Area of triangle PQR is _____ cm^2 . The area of the shaded part is _____ cm^2 .

3	4	10	14	15	41	56
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Adapted from : In Step Maths (Work book 5A Part 2, Q2a, p54)
by Lim Siew Choo & Carmen Fernando



What number makes sense?



Name: _____

Date: _____

Class: _____

Level 6

5

Topic: Four-sided Figures

Read the problem. Look at the numbers in the box.

Put the numbers in the blanks where you think they fit best.

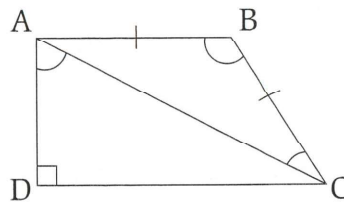
Read the problem again. Do the numbers make sense?

Angles in a trapezium

In the trapezium ABCD, AB is parallel to DC.

Since ABC is an isosceles triangle, $\angle ABC$ is _____ $^\circ$ and $\angle BCA$ is _____ $^\circ$.

ACD is a right-angled triangle. Therefore $\angle ADC$ is _____ $^\circ$ and $\angle DAC$ is _____ $^\circ$.



30	60	90	120
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Adapted from : In Step Maths (Text book 6A, Q14, p69)
by Chandraselven Bavani