

Y7 Learning at home activity sheet #4

Problem 1:

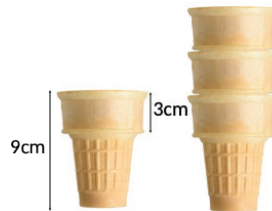
Jordan says that when you multiply two numbers together the product (answer) is always bigger than either of the two original numbers.

Charley says that sometimes the product can be smaller.

Who is right and why?

Problem 2:

Based on these measurements, how many ice cream cones stacked inside each other would you need to make a tower more than a metre tall?



Problem 3:

Can you place five of the digits between 2 and 9 in the boxes to make this equation true? You can only use each digit once.

$$\frac{1}{\square} \times \square\square = \square\square$$

How many ways can you solve this problem?

Number facts:

Cut out the cards on the attached sheet and use them to practice your multiplication facts with place value.

- Shuffle the cards.
- Pick two randomly and multiply them together.
- If you need to, check your answers with a calculator.

Quick questions:

1. What is $\frac{1}{4}$ as a decimal?
2. What is 25×3 ?
3. How many sides does a pentagon have?
4. What is the area of a 2cm by 3cm rectangle?
5. What is 0.5 as a fraction?
6. What is $\frac{1}{4}$ of 48?
7. Can a triangle have two right angles?
8. How many millilitres are there in a litre?
9. What is $0 + 53$?
10. What is $26.5 + 2.3$?

Number line challenge:

Draw a number line. Put these numbers on it. Think carefully about which numbers to put on first and how long your number line needs to be.

0, -10, $\frac{40}{4}$, 4.8, 20.5, 30

Add your age and the ages of any pets you have to the number line.

How much time?

Work out about how many hours you spend each year doing each of the following:

- Sleeping
- At school
- Eating

What other activities can you estimate the time for?

Learning at home: Notes for whānau

When your child finishes each activity, ask them to add a mouth to the face to show how they felt about that activity.



Problem 1:

Charley is correct. If either of the of the factors (original numbers) are less than 1 the product will be smaller than the other number. For example, $0.5 \times 2 = 1$, which is smaller than 2.

Problem 2:

The first cone is 9cm high, and each extra cone adds 3 cm to the total height. If you add 30 cones to the original one, the total height will be $9\text{cm} + (30 \times 3\text{cm}) = 9\text{ cm} + 90\text{cm} = 99\text{cm}$. The next cone will make the tower more than a metre tall, so the answer is 32 cones in total.

Problem 3:

There are quite a few solutions to this problem. To find them all you need to be systematic:

If you put a 2 as the denominator of the fraction, you know that you are finding half of a 2-digit number, so the answer has to be below 50. You can't use a 1 or a 2, so the lowest possible answer is 33. It is not too hard to work through the numbers between 33 and 49, checking each to see whether its double uses available digits. For example, 35 doesn't work because double 35 is 70 and 0 isn't one of the digits allowed.

The possible answers with $\frac{1}{2}$ as the fraction are:

$$\frac{1}{2} \times 68 = 34 \quad \frac{1}{2} \times 76 = 38 \quad \frac{1}{2} \times 78 = 39 \quad \frac{1}{2} \times 86 = 43 \quad \frac{1}{2} \times 96 = 48 \quad \frac{1}{2} \times 98 = 49$$

The same process with 3 as the denominator gives:

$$\frac{1}{3} \times 78 = 26 \quad \frac{1}{3} \times 81 = 27 \quad \frac{1}{3} \times 87 = 29$$

And with 4 as the denominator, the only possibility is:

$$\frac{1}{4} \times 96 = 24$$

The denominator can't be 5 or higher, because the only 2-digit numbers that give less than 100 when multiplied by 5 are less than 20, and you can't use a 1.

How much time?

The answer to each of these will vary. Encourage your child to work out each by estimating for a shorter period of time and then multiplying to find a total for a year. Some example calculations are:

- Sleeping: About 9 hours a night. $9 \times 365 = 3285$ hours per year.
- At school: About 6 hours a day, 5 days a week, 40 weeks a year. $6 \times 5 \times 40 = 1200$ hours per year.
- Eating: 5 minutes for breakfast, 10 minutes for lunch, 15 minutes for dinner, 5 minutes for snacks per day. $35 \times 365 = 12,775$ minutes per year (about 213 hours per year).

Your own child's answers are likely to be different. Other activities they may like to estimate include, reading, playing sport, time in the bath/shower, etc.

Number line challenge:

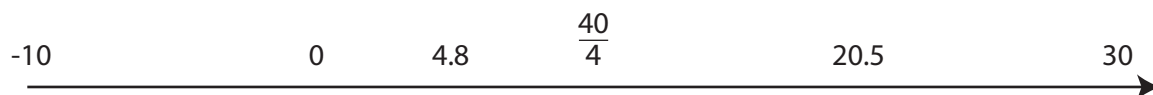
The first thing to do in creating this number line is to work out what numbers should go closest to each end. Here are the numbers to place on the line in order from lowest to highest.

-10, 0, 4.8, $\frac{40}{4}$, 20.5, 30

The lowest number is -10, and the largest number is 30, so put those in first.

Then work out about where each other number belongs. If you divide the space into 4, you can put 0, $\frac{40}{4}$ (10), and 20.5 at those points. 4.87 is about halfway between 0 and $\frac{40}{4}$.

The numbers do not need to be placed exactly, but make sure they are in the right order and the spacing is reasonable. Here is a possible answer:



Quick Questions:

1. 0.25
2. 75
3. 5
4. 6cm^2
5. $\frac{1}{2}$
6. 12
7. No
8. 1000
9. 53
10. 28.8

1	2	3	4	5
6	7	8	9	
10	20	30	40	50
60	70	80	90	
100	200	300	400	500
600	700	800	900	1000