Y7 Learning at home activity sheet #2

Problem 1:

I'm thinking of a 4-digit number. If I add its four digits together I get 34. How many different numbers are there that I could possibly be thinking of?

Problem 2:

A square has an area of 4m². What is its perimeter?

Problem 3:

Ngahina is playing a game. She counts how many times in a row she has to toss a coin until it comes up heads. She says that she will never have to toss it more than four times.

Is she right? How likely is it that she would toss a coin four times and get tails every time?

Number facts:

Complete the number facts on the attached sheet. You can complete one box each day. On the fifth day, make up some examples of your own.

Quick questions:

1. What are the factors of 12?
2. What is $\frac{3}{4}$ times 20?
3. How many faces does a cube have?
4. What do you call the distance from the centre of a circle to its edge?
5. What is 0.4 as a fraction?
6. Is every triangle symmetrical?
7. Is 93 divisible by 3?
8. How many millimetres are there in 12 centimetres?
9. What is 2.4 + 1.5?
10. What is 19 x 5?

Project:

Estimate the volume of your bedroom, then make measurements and calculate the volume as accurately as you can.

Factor challenge:

Factors are numbers that divide into another number without leaving a remainder. The factors of 6 are, 1, 2, 3, and 6.

Prime numbers only have two factors, 1 and themselves. There are four 2-digit numbers with 12 factors. Can you find them?

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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:

The key to this problem is working out what the digits could be. They can't all be 9s, because 4 x 9 = 36. But 34 is pretty close to 36, so we know that the sum of the digits is only 2 less than if they were all 9s.

If one digit is a 7 then the other three must be 9s.

If one is an 8 then two of the others must be 9s and the other a second 8.

So what numbers can be made up with one 7 and three 9s? There are just four of them. They are 9997, 9979, 9799, 7999.

And what numbers can be made up with two 8s and two 9s? There are just six of them. They are 9988, 9898, 9889, 8998, 8989, 8899.

The answer to the question is therefore 10.

Problem 2:

You find the area of a square by multiplying its side length by itself. If a square has an area of 4m², its side length must be a number that multiplies by itself to give 4. Since 2 x 2 = 4, the square has sides 2m long. Its perimeter is 4 × 2m = 8m.

Problem 3:

For any one turn it is very unlikely that she will toss the coin four times without getting heads, but if she keeps on playing the game she will eventually have a turn when she gets tails four times in a row.

If she tosses the coin once the chance of not getting heads is $\dfrac{1}{2}$

If she tosses the coin twice the chance of not getting heads is $\dfrac{1}{4}$

If she tosses the coin three times the chance of not getting heads is $\dfrac{1}{8}$

If she tosses the coin four times the chance of not getting heads is $\dfrac{1}{16}$

Project:

How your child carries out this task will depend on the equipment available. For their estimate, it is reasonable to estimate the length, width and height to the nearest metre, and multiply these together. If you have a measuring tape available they should use this to measure the actual dimensions of their room. Otherwise they could make a simple one from a piece of string or wool. They should try to measure lengths to the nearest centimetre.

Measuring the height of the room may be challenging, and they may need to estimate if they can not reach the ceiling.

Factor challenge:

This can be completed by trial and error, but it will take a long time. It is useful to try to take some shortcuts. If a number has a lot of factors, it is likely that the small numbers will all be factors, so try numbers that are multiples of 2, 3, and 4. If a number is a multiple of both 3 and 4, it must also be a multiple of 12, so try those first.

As it turns out, the four numbers are:

- 72 (factors = 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72)
- 60 (factors = 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60)
- 84 (factors = 1, 2, 3, 4, 6, 7, 12, 14, 21, 28, 42, 84)
- 96 (factors = 1, 2, 3, 4, 6, 8, 12, 16, 24, 32, 48, 96)

Quick Questions:

1. 1, 2, 3, 4, 6, and 12
2. 15
3. 6
4. Radius
5. $\frac{4}{10}$ or $\frac{2}{5}$
6. No. Equilateral and isosceles triangles are symmetrical, scalene triangles are not.
7. Yes, 93 ÷ 3 = 31
8. 120
9. 3.9
10. 95

30 x 8 = ▢	70 x 6 = ▢
120 ÷ 6 = ▢	540 ÷ 6 = ▢
▢ x 9 = 54	▢ x 6 = 36
3600 ÷ ▢ = 900	2700 ÷ ▢ = 300
80 x 60 = ▢	70 x 40 = ▢
▢ ÷ 7 = 70	▢ ÷ 5 = 50
80 x ▢ = 72	80 x ▢ = 24
60 x 7 = ▢	90 x 5 = ▢
810 ÷ 9 = ▢	540 ÷ 8 = ▢
▢ x 7 = 56	▢ x 9 = 72
2800 ÷ ▢ = 700	2500 ÷ ▢ = 500
60 x 50 = ▢	80 x 40 = ▢
▢ ÷ 7 = 50	▢ ÷ 8 = 80
90 x ▢ = 36	90 x ▢ = 18