

Try making all of the numbers from 1 to 20 using only the number 4.

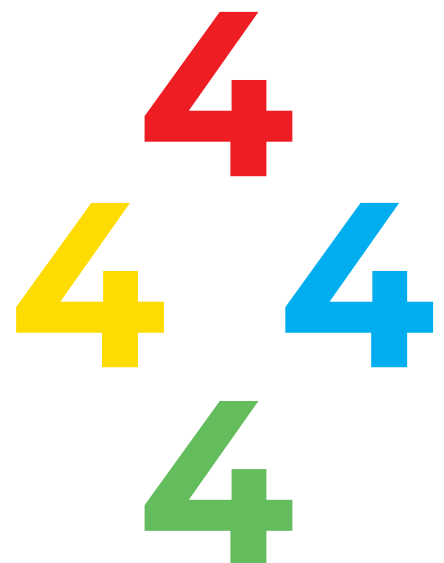
Example: $8 = 4 + 4$

You can use any operation (+, -, ÷, x) and brackets if you like.



Using only four 4's and any operation, make the numbers 1 to 20 (inclusive).

Example: $4 + 4 + 4 - 4 = 8$



Teachers Notes:

Problem 5:

Multiples of 4 can be made by adding; $4 + 4 = 8$, $4 + 4 + 4 = 12$, $4 + 4 + 4 + 4 = 16$, $4 + 4 + 4 + 4 + 4 = 20$

Note 16 can be made by multiplying 4 by 4: 4×4 or 4^2

Once students realise $\frac{4}{4}$ is one, further possibilities arise.

Consider $\sqrt{4}$, $4^4/4$, $4!$ and $4 \times 3 \times 2 \times 1$

Problem 6:

This problem is discussed at length on the internet. Teachers are encouraged to look at the AMSI website calculate.org.au/2017/11/26/four-facts-order-operations

Australian Curriculum Links

Depending on the approach adopted by the students, they may use parts of the following content descriptor/s

Year 6: ACMNA134

Explore the use of brackets and order of operations to write number sentences

Year 6 ACMNA123

Select and apply efficient mental ... strategies ... to solve problems involving all four operations with whole numbers.

Note that the use of square roots is Year 7 content.

Year 7 ACMNA150

Investigate and use square roots of perfect square numbers.

Factorials appear much later in the curriculum.