Number and Algebra mixed part 3

Whether you are a parent, teacher or home school educator, we've compiled examples of activities, games and puzzles which can be used to support the learning of algebra.

These examples are taken from the 'Number and Algebra mixed' packs found in our SMILE resource collection. The mathematical demand increases as you work through the packs. There are lots more ideas in the complete packs, which can be downloaded at https://www.stem.org.uk/rxzed

Answers to cards can be found at https://www.stem.org.uk/rxxo5

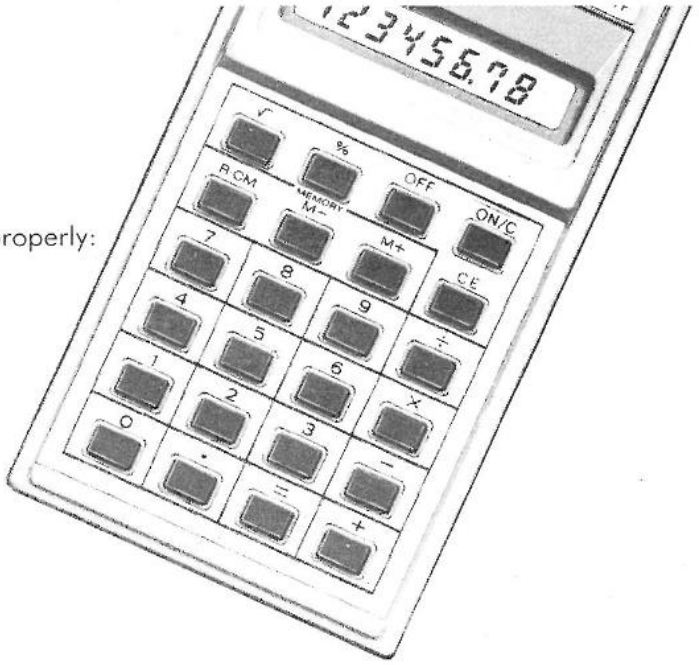
Smile **1462**

Missing Keys

Your calculator has broken down!

Only five of the buttons are working properly:

[7] [3] [×] [−] [=]



How can you use these 5 buttons to make the calculator show each number from 0 to 9?

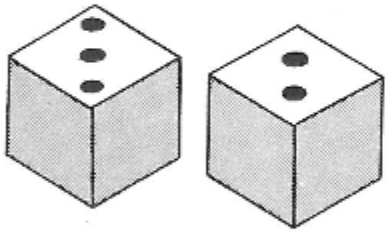
0 is easy! Just press [7] [−] [7] [=]

Can you do the others?

rules

1. Take turns to roll the 2 dice.
2. Add, subtract, multiply **or** divide the numbers.
3. Cover an answer with a counter — if you can.
4. You cannot put 2 counters on the same square.
5. If you put your counter
   - . . . beside 1 counter, score 1 point
   - . . . beside 2 counters, score 2 points
   - . . . beside 3 counters, score 3 points
   - . . . and so on.

example



$3+2=5$
$3-2=1$
$3\times2=6$
$3\div2=1\frac{1}{2}$

You could choose to put your counter on 1, 5 or 6.

In this game, you can't go on 1 because it's taken.

If you go on 5 you score 1 point.

A better choice would be 6 to score 3 points.

●	2	●	4
5	6	●	8
9	10	11	12
15	16	18	20
24	25	30	36

1	2	3	4
5	6	7	8
9	10	11	12
15	16	18	20
24	25	30	36

junior contig

A game for 2 to 5 players

You will need counters and 2 dice

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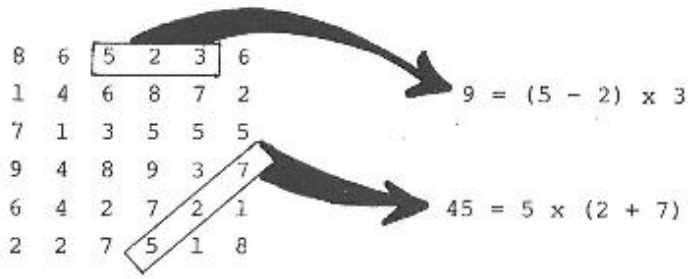
SMILE

THREE NUMBERS

8	6	5	2	3	6
1	4	6	8	7	2
7	1	3	5	5	5
9	4	8	9	3	7
6	4	2	7	2	1
2	2	7	5	1	8

Choose any 3 numbers next to each other to make sentences with different answers.



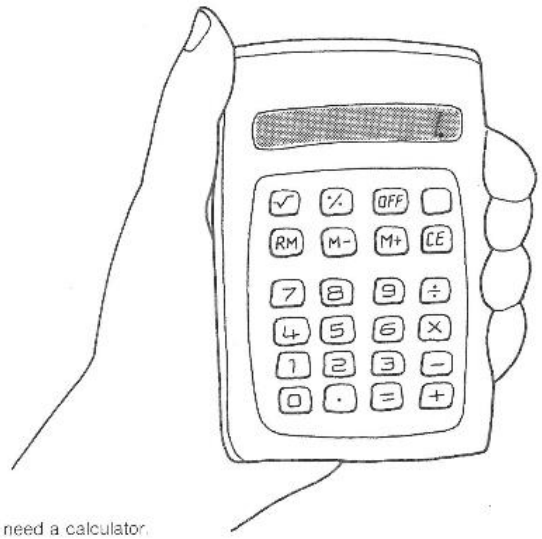
(1) Make sentences for these answers:

22 16 26 21 3

(2) Challenge a friend! Take turns to set an answer and see who can find it first.

GET TO ONE

An activity for a small group.



Each person will need a calculator.

Enter 28 on the display.

Using only [+] [−] [×] [÷] [=] and the key number [3] how quickly can you get to one?

This way uses 6 operations:

	28
+ 3 ⟶	31
× 3 ⟶	93
+ 3 ⟶	96
+ 3 ⟶	99
÷ 33 ⟶	3
÷ 3 ⟶	1

Can you do better?

THREE MORE PROBLEMS

How many operations do you need to get to one?

Remember: only use [+] [−] [×] [÷] [=] and the key number.

PROBLEM 1

Starting number 55
Key number [6]
Number of operations 8: good 7: very good 3: excellent

PROBLEM 2

Starting number 40
Key number [5]
Number of operations 8: good 6: very good 4: excellent

PROBLEM 3

Starting number 24
Key number [9]
Number of operations 9: good 8: very good 5: excellent