Second Level Maths Tasks
Week beginning 18.1.2021

Maths Homework Options

To keep your mental maths up to scratch, keep working through your maths options sheets.

Frequent practise stops skills getting rusty.

10-15 minutes during each maths session will help your number work.

Algebra—Simplifying Expressions

This week I've made another Powerpoint for you—it explains how to "simplify" or "tidy up" expressions.

I'm loving hearing how you are getting on with your algebra on the Blog so let me know how this goes!

There are some more to try on page 3 of this maths grid.

5-a-day

I've put some number problems on the next sheet, you can choose 5 each day to work on like we would in class.

Remember to choose a level that is challenging enough for you.

Problem Solving

Who owns the fish?

On page 4 I have put a problem to solve. Problems like these are called "Einstein Riddles" because he is said to have invented a similar one—although there isn't any evidence of this.

They are still good for getting you thinking though. Use the facts, start with what you definitely know, and then work from there.

Function Machines part 2

I've added another page of work on function machines—have a go at the tasks on page 5.

The tasks this week involve some problem solving and reasoning so get your thinking caps on.

Card Games

Remember you can play some of the card games we like in class to practise your numbers.

- Remove all the face cards. Put the cards face down in the middle of the table. Each payer takes 2 cards, and multiplies their values. Highest score wins all the cards.

- A game for 3 players. Remove all the face cards. Players 1 and 2 each take a card, and without looking at it, hold it against their head. Player 3 looks at both cards, multiplies them, and calls out the answer. First player to work out what their card must be wins.

5-a-day

Choose a level of challenge, choose a row to do each day

Mild

- 8394 + 3345   2458-2344   9003 x 7   588÷6   5x5 > 6x4, true or false?
- 1192+3925   8364-3900   5045 x 8   405÷3   21, 28, 35, ___, ___
- 7728+2736   7102-6278   8236 x 5   584÷8   16÷4 < 36÷9, true or false?

Medium

- 6637.24 + 8475.94   663.88—293.45   63.23 x 6   358.5 ÷ 5   6.5x10 > 8x8, true or false?
- 927.9 + 848.48   908.3-600.6   648.3x9   4573.8 ÷ 6   1.2, 1.4, 1.6, ___, ___
- 7736.72 + 2937.27   9937.3-1724.5   736.7 x 7   2920.8 ÷ 3   6x6 > 9x4, true or false?

Spicy

- 74.6 + 456.76 + 6.374   937-4.228   75x41   7364÷4   1.4, 1.8, 2.2, ___, ___, ___
- 488.5 + 8374.4 + 34.91   364-83.505   34x16   36477÷8   7, 5, 3, 1, ___, ___, ___
- 4656.65 + 44.73 + 367.232   2450—12.57   89x26   4637÷5   9.3, 9.6, 9.8, ___, ___

Tidying Up Expressions

Green box:

4a + 3a

8d – 5d

8u + 4u + 2u

5m -2m + m

9k + 7k – 2k

6m – 4m + 2m

6y - 2y – y – 3y

a + 2a – a – a

2x + 2x – 3x + 19x – 10x + 4x

u + u -2u + 3u –u +2u – u –u

Yellow box:

2x + 2y + 3x + 3y

x + x + y + 3x + 5y

5m +9n – 3m -2n

9g + 8h – 5g -3g + 6h

3p + 3q – p + 2p

12x + 20y – 2x – 3x

6s + 6t – 3s – 3t + s

14z – y - 10z + 4y -2z + 2y

20w + 14v – 13w – 12v – 5w -2v

13m + 6n – 1

Red box:

2f + 2 + 3f + 5

p + 1 + p +1 +p

9s -2 – 6s + 4

9x + 9 – x -1

3x + 2y +3 + 5x + 4y + 6

2p + 3q + 4 – p – 2q – 3

9r + 7s + 8 -2r – 4s + 4

5p + 6q + 4 -3p –q + 12

6d + 3e -2d + 4 – e – 3

19 + 8g + 15h – 5g - 5h – 15

Who Owns The Fish?

There are five houses in a row and in five different colours.
In each house lives a person from a different country.
Each person drinks a certain drink, plays a certain sport, and keeps a certain pet.
No two people drink the same drink, play the same sport, or keep the same pet.

- The Brit lives in a red house
- The Swede keeps dogs
- The Dane drinks tea
- The green house is on the left of the white house
- The green house owner drinks coffee
- The person who plays polo rears birds
- The owner of the yellow house plays hockey
- The man living in the house right in the centre drinks milk
- The Norwegian lives in the first house
- The man who plays baseball lives next to the man who keeps cats
- The man who keeps horses lives next to the one who plays hockey
- The man who plays billiards drinks beer
- The German plays soccer
- The Norwegian lives next to the blue house
- The man who plays baseball has a neighbour who drinks water.

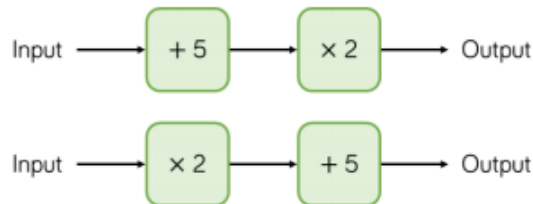Eva has a one-step function machine. She puts in the number 6 and the number 18 comes out.

6 ⟶ [ ] ⟶ 18
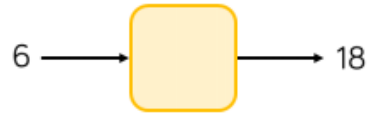
What could the function be?
How many different answers can you find?
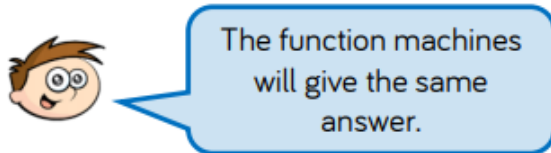
Amir puts some numbers into a function machine.

2 ⟶ [ ] ⟶ 8
3 ⟶ [ ] ⟶ 7
6 ⟶ [ ] ⟶ 4
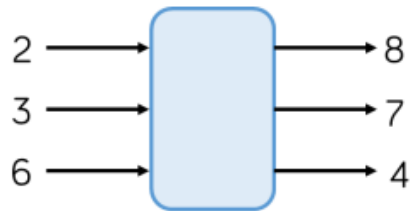
What is the output from the function when the input is 16?

Dora puts a number into the function machine.

Input ⟶ ÷ 2 ⟶ Output

Dora's number is:
- A factor of 32
- A multiple of 8
- A square number

What is Dora's input?
What is her output?

Can you create your own clues for the numbers you put into a function machine for a partner to solve?

Teddy has two function machines.

Input ⟶ + 5 ⟶ × 2 ⟶ Output

Input ⟶ × 2 ⟶ + 5 ⟶ Output
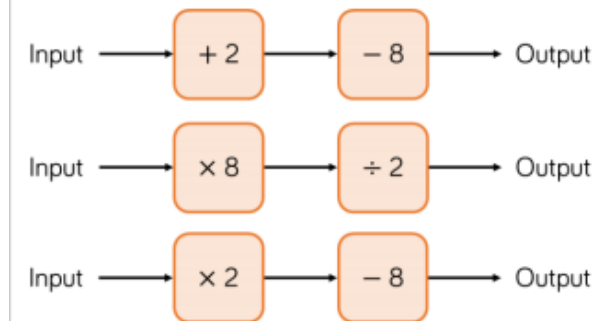
He says,

> The function machines will give the same answer.

Is Teddy correct?

Is there an input that will give the same output for both machines?

Mo has the following function machines.

Input ⟶ + 2 ⟶ − 8 ⟶ Output

Input ⟶ × 8 ⟶ ÷ 2 ⟶ Output

Input ⟶ × 2 ⟶ − 8 ⟶ Output

Explain which of these can be written as single function machines.