

04.03.24

Number Nest Weekly Challenge



Warm up

Decide whether each statement is true or false.

- a) 4 is a factor of 20 **True**
- b) 10 is a factor of 5 **False**
- c) The factors of 15 are 1, 3, 5 and 15 **True**
- d) The only factors of 6 are 2 and 3 **False**
- e) 1 is a factor of every number **True**
- f) 18 has exactly six factors **True**

Activity

1. Four friends, Bruce, Tom, Ali and Dave, take their wives to a tea-dance. At one point during the dance, the partners were as follows:

Annabelle is dancing with Tom.

Kate is dancing with Liz's husband.

Lisa is dancing with Kate's husband.

Dave is dancing with Ali's wife.

Ali is dancing with Tom's wife.

Identify the married couples. You may want to use the grid below to help you.

	Bruce	Tom	Ali	Dave
Dancing with...	Liz	Annabelle	Lisa	Kate
Married to...	Annabelle	Lisa	Kate	Liz

2. Nicole and Chloe were given a basket containing 25 pieces of fruit by their grandmother. On the way home, Nicole ate one apple and three pears and Chloe ate three apples and two pears. When they got home they found the basket contained the same number of apples as it did pears and no other types of fruit. How many pears were they given by their grandmother?

The number of pieces of fruit the children had when they arrived home was $25 - 1 - 3 - 3 - 2 = 16$. Since we are told that the basket then contained equal numbers of apples and pears, there were then $16 \div 2 = 8$ pears in the basket. Therefore, the number of pears they were given by their grandmother was $8 + 3 + 2 = 13$.



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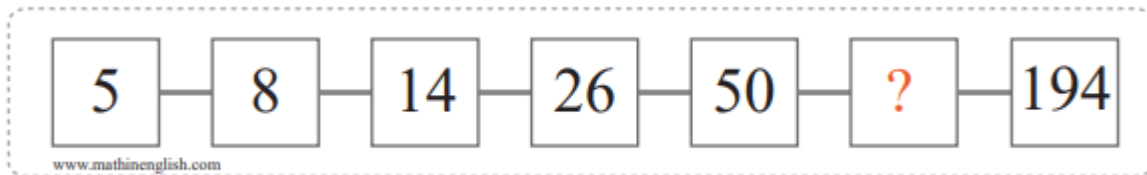
3. Jake has forgotten the code to allow him to unlock his bike. He knows:
- It is a 3-digit number
 - The sum of the digits is 13
 - The outer digits are even
 - Subject to these conditions, the product of the digits is as large as possible.

What is the code?

The biggest product is 80 which is the outcome from the triple 4 5 4. The code is 4 5 4.

Challenge

Which number completes the pattern?



Answer: 98. The sequence follows a pattern of times 2, minus 2.