

# Perplexing Puzzles Years 1-2

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Perplexing Puzzles

## Number Partitions

1

The number 4 can be partitioned into the following addends:

$$4 = 1 + 1 + 1 + 1$$

$$4 = 3 + 1$$

$$4 = 2 + 1 + 1$$

$$4 = 4$$

Find the partitions for the number 5.

Study the partitions for 4 and 5. If a partition is considered different when the numbers are rearranged, for example,  $3 + 1$  is different from  $1 + 3$ , then how many partitions are possible for 6?

Use what you already know from these examples.

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## Partitioning 10

2

I believe there are 42 ways of partitioning 10.

For example:

$$1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 = 10$$

$$2 + 2 + 2 + 2 + 2 = 10$$

$$1 + 1 + 1 + 7 = 10$$

are all ways to partition 10.

Try to find all of the ways of making 10.

Use a system to make sure you don't miss any.

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**ANSWERS TO PREVIOUS PUZZLES:**

1. 5 can be partitioned in 16 ways, and 6 can be partitioned in 32 ways.
2. There are 42 ways to partition 10.

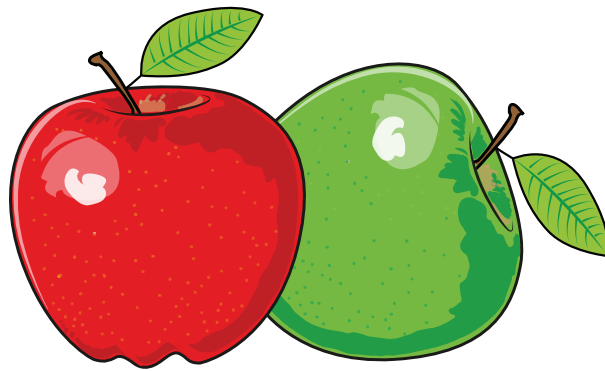
Perplexing Puzzles

# Apples

3

There are 20 apples that need to be put into 8 bowls. No more than 4 and no fewer than 2 apples can fit into a bowl.

Show and explain with pictures, numbers and / or words how you would place all 20 apples into the 8 bowls.



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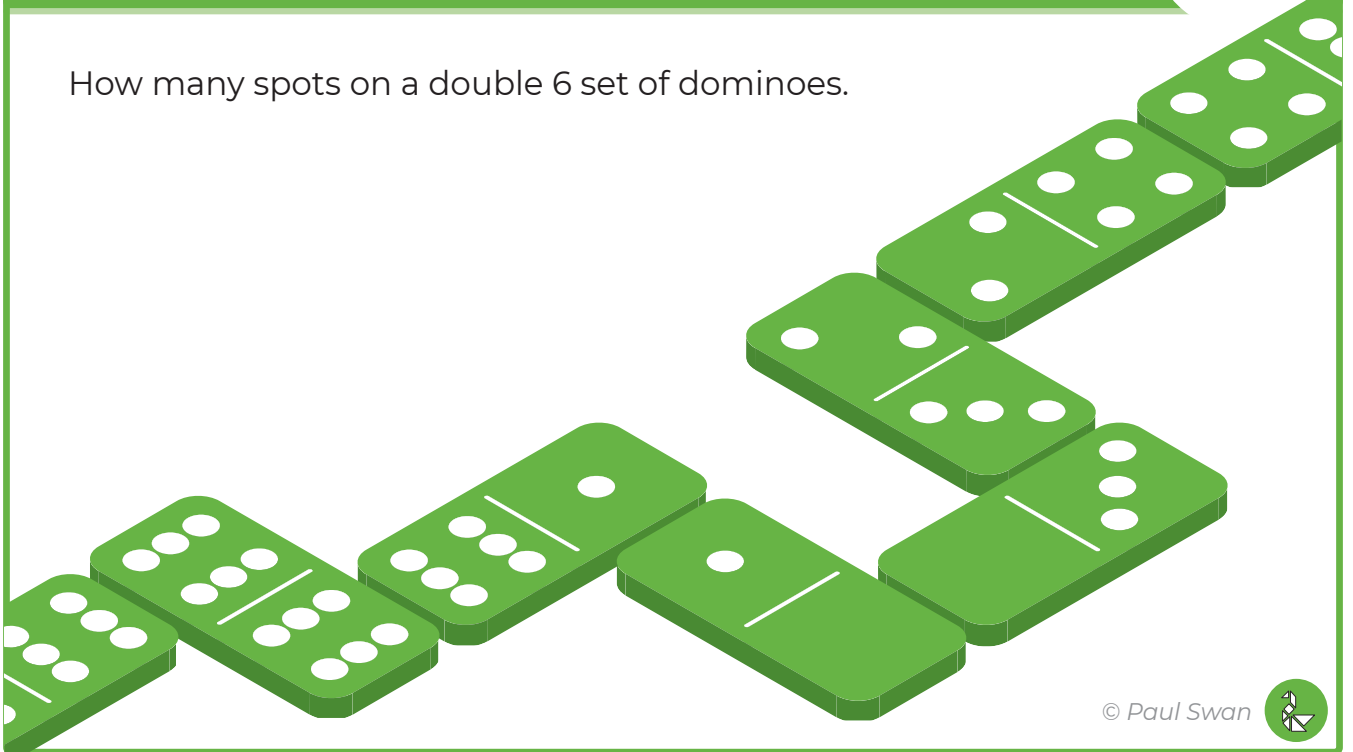


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# Domino Spots

4

How many spots on a double 6 set of dominoes.



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**ANSWERS TO PREVIOUS PUZZLES:**

3.
  - i) 4 bowls with 3 apples and 4 bowls with 2 apples.
  - ii) 2 bowls with 4 apples and 6 bowls with 2 apples.
  - iii) 1 bowl with 4 apples, 2 bowls with 3 apples, and 5 bowls with 2 apples.
4. 168 spots.

## Perplexing Puzzles Answers

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1. 5 can be partitioned in 16 ways, and 6 can be partitioned in 32 ways.
2. There are 42 ways to partition 10.
3.
  - i) 4 bowls with 3 apples and 4 bowls with 2 apples.
  - ii) 2 bowls with 4 apples and 6 bowls with 2 apples.
  - iii) 1 bowl with 4 apples, 2 bowls with 3 apples, and 5 bowls with 2 apples.
4. 168 spots.

