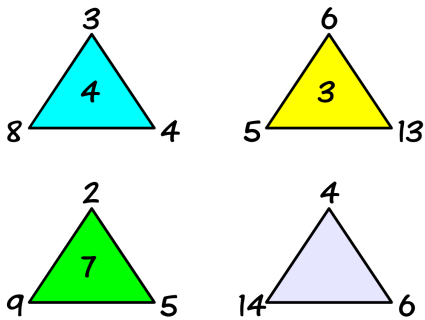


Missing Number

☆ 2

Which number should go in the empty triangle?

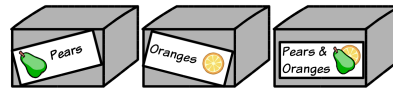


Fruitful

☆☆☆ 27

There are three boxes.

One box contains **pears**, one contains **oranges**, and one contains **pears and oranges**.



The labels have fallen off and all have been stuck back on the wrong boxes.

Barry opens one box and without looking in the box takes out one piece of fruit. He looks at the fruit and immediately puts the labels on the the right boxes.

How did he do it?

Petrol Prices

☆☆ 17

Some petrol stations display prices by sticking **segments** together to make numbers.

78.2

What is the **largest** number you can make with 10 **segments**?

0123456789

What is the **largest** you can make with 16 **segments**?

Monty Hall

☆☆☆ 12

You are the winner in a quiz show and can choose a prize from behind 3 locked doors. Behind one door is a new car. Behind the other two doors are goats.



When you have made your choice the host opens one of the other doors to reveal a goat.

Should you **stick** with your choice, or **switch** to the other one? Or does it make no difference?

2. Missing Number

The missing number is 5 (add the bottom two numbers and divide by the top number).

Students may be encouraged to come up with puzzles of their own.

27. Fruitful

Barry opened the box labelled “pears & oranges”. This box must contain only pears or only oranges. If he picks a pear then he knows the box he opens is “pears” and the other two boxes must be “oranges” and “pears and oranges”. The one labelled “oranges” must be wrong so it is labelled as “pears and oranges”. A similar argument works if he picks an orange.

In summary:

<i>He picks</i>	<i>Pears</i>	<i>Oranges</i>	<i>P & O</i>
<i>A pear</i>	Oranges	P & O	Pears
<i>An orange</i>	P & O	Pears	Oranges

17. Petrol Prices

||||| and ||||| — a good way of showing the importance of place value. A more interesting question is to ask how many *different* numbers can be made with 7 segments.