

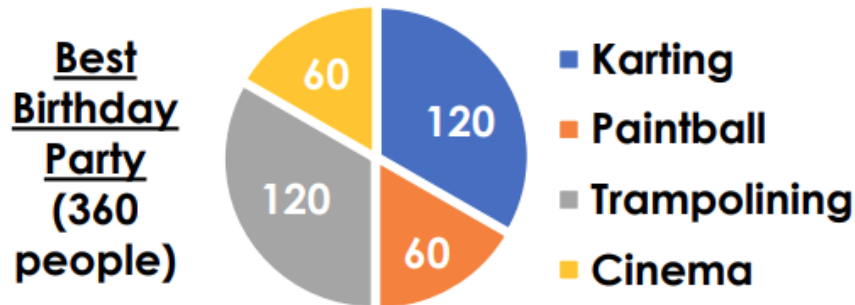
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Number Nest Weekly Challenge



Warm up

Imagine a pie chart was drawn, with the same proportions as the one below, but for a survey of 540 people.



Would the 'Paintball' category have 90 people in it? Show your working.

Original Paintball proportion from 360 people:

$$\frac{60}{360} = \frac{1}{6}$$

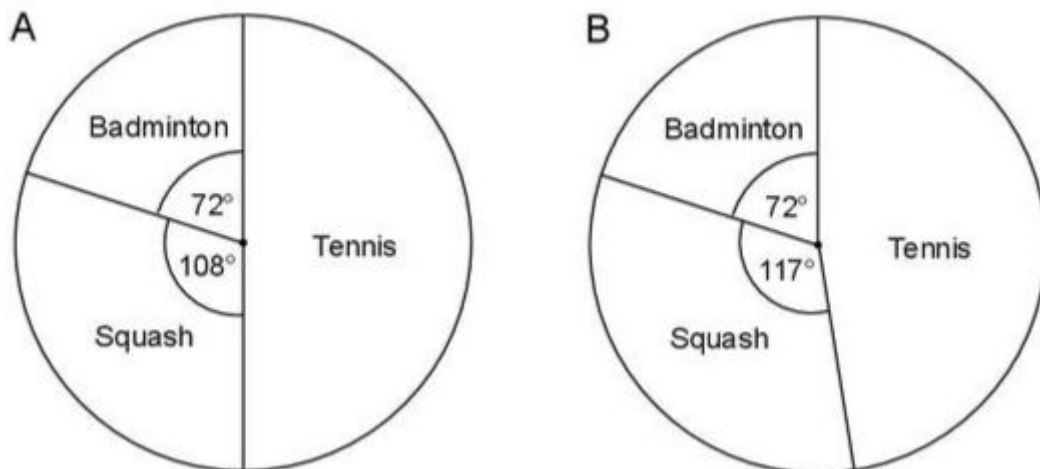
If new total amount of people is 540 and paintball category is 90 then:

$$\frac{90}{540} = \frac{1}{6}$$

The proportion is the same.

Activity

A group of children had to choose to play one of three sports - tennis, squash or badminton. Pie chart A shows their choices. One of the children changes sport. Pie chart B shows their choices after this change.



Use the pie charts to work out how many children chose to play badminton.

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From pie chart A we can see that half the children do tennis, $\frac{1}{5}$ do badminton and $\frac{3}{10}$ do squash.

From pie chart B we can see that badminton stays the same, tennis decreases and squash increases.

The increase for squash is 9° and so we can see that this will be the one child who switched.

$\frac{360}{9} = 40$ children in total. $\frac{1}{5} \times 40 = 8$ children who chose to play badminton

Alternatively:

$$\frac{72}{9} = 8 \text{ children who chose to play badminton.}$$

Super stretcher!

The dice shown to the right are unusual. A usual six-sided die would have the numbers 1, 2, 3, 4, 5 and 6 on the sides. These dice, however, are unusual because the numbers on the six sides are **1, 2, 3, 5, 7** and **9**.

Two of these unusual dice, one red and one blue, are rolled and the numbers on the upper faces are added together. A winning rolls occurs when the sum is either a perfect square or a prime number.

Determine the probability that you win on any particular roll.

Using a sample space diagram

	1	2	3	5	7	9
1	2	3	4	6	8	10
2	3	4	5	7	9	11
3	4	5	6	8	10	12
5	6	7	8	10	12	14
7	8	9	10	12	14	16
9	10	11	12	14	16	18

We can see there are 16 values that would win and there are a possible 36 values from two dice.

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Probability of a win is then $\frac{16}{36} = \frac{4}{9}$

