

# Number Nest Weekly Challenge



## Warm up

1. What is  $\frac{4}{9} + \frac{1}{6}$ ?  $\frac{11}{18}$
2.  $2(a + 11) = 28$ , what is  $a$ ?  $a = 3$
3. What is  $\frac{4}{7} \div 8$ ?  $\frac{1}{14}$
4. How many seconds are in  $2\frac{1}{6}$  hours?  $2\frac{1}{6} \times 3600 = \frac{13}{6} \times 3600 = 13 \times 600 =$   
**7800 seconds**
5. Round  $0.\overline{66}$  to 3 significant figures. **0.667**
6. Rearrange the following the numbers from smallest to largest:

$$\frac{2}{3}, \frac{7}{2}, 2\frac{1}{2}, 0.55$$

$$0.55 < \frac{2}{3} < 2\frac{1}{2} < \frac{7}{2}$$

## Activity

1. Every school day David uses this spinner once to try to avoid doing his homework. In a term with 65 school days, how many times would I expect to do my homework?

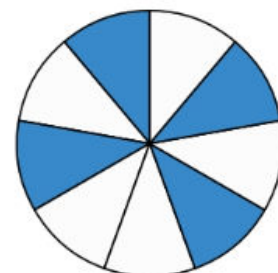
$$65 \times \frac{1}{5} = 13$$



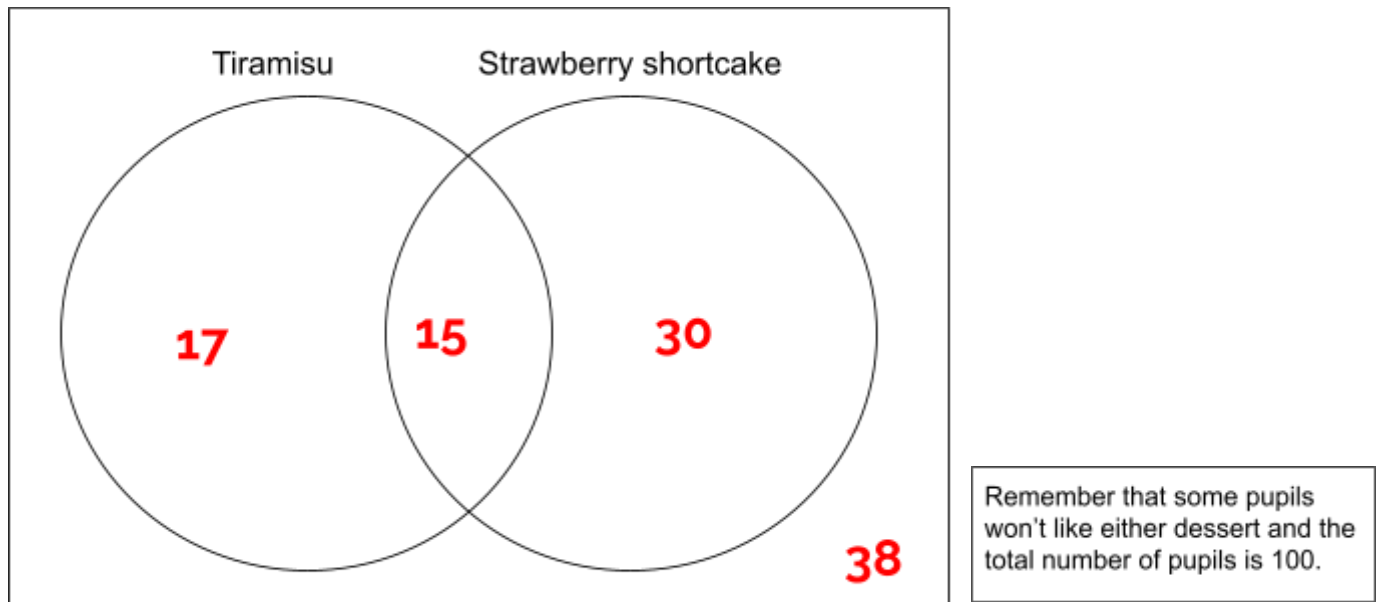
2. Maddie spins the spinner on the right, what is the probability that the spinner lands on blue? (bonus: what is the probability that the spinner lands on blue then white?)

$$1. \frac{4}{9}$$

$$2. \text{ Bonus: } \frac{4}{9} \times \frac{5}{9} = \frac{20}{81}$$



3. At school with 100 pupils, 45 pupils like strawberry shortcakes, 32 pupils like tiramisu and 15 like both. Fill in the Venn diagram and answer the questions below:



- a) If a random pupil is selected, what is the probability that they like strawberry shortcake?

$$\frac{30 + 15}{100} = \frac{45}{100} \text{ or } 0.45$$

- b) If a random pupil is selected, what is the probability that they don't like tiramisu?

$$\frac{30 + 38}{100} = \frac{68}{100} \text{ or } 0.68$$

- c) If a random pupil is selected, what is the probability that they like tiramisu **and** or strawberry shortcake?

$$\frac{30 + 15 + 17}{100} = \frac{62}{100} \text{ or } 0.62$$

- d) If a random pupil is selected, what is the probability that they like tiramisu **but not** strawberry shortcake?

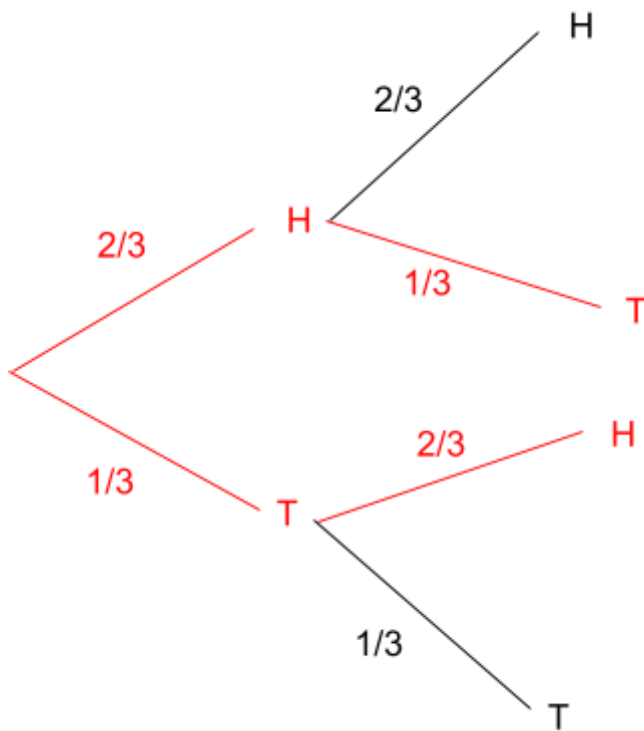
$$\frac{17}{100} \text{ or } 0.17$$

- e) Bonus: **Given** that the pupil likes strawberry shortcake, what is the probability that they also like tiramisu?

**The are 45 pupils who like strawberry shortcake, and 15 of them like tiramisu as well. So the probability is  $\frac{15}{45} = \frac{1}{3}$**



4. James tosses an unfair coin twice, the probability of landing on heads is  $\frac{2}{3}$ . What is the probability that he obtains a head and a tail in either order? (draw a tree diagram!)



**Probability of obtaining a H and a T is:**

$$2/3 \times 1/3 \times 2 = 4/9$$

### Puzzle

Kyle got a gumball machine for his birthday. He decides to draw twice, what is the probability that he gets a pink and a blue gumball?

**There are 24 gumballs in total, 7 red and 5 blue.**

**Kyle could get a red gumball first then a blue gumball:**

$$\frac{7}{24} \times \frac{5}{23}$$

**He could also get a blue gumball first then a red gumball:**

$$\frac{5}{24} \times \frac{7}{23}$$

**So the total probability is :  $2 \times \frac{7}{24} \times \frac{5}{23} = \frac{35}{276}$**

