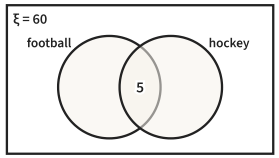
Fractions and Venn diagrams

1

60 students were asked about sport. $\frac{1}{3}$ play football and $\frac{1}{4}$ play hockey. 5 play both. How many play neither?



football $\frac{1}{3}$ of 60 = 20

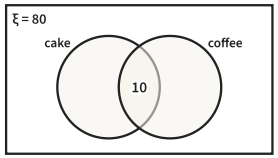
hockey $\frac{1}{4}$ of 60 = 15

Neither ☐ − ☐ = ☐

Answer _____

2

80 people visited a café. $\frac{3}{8}$ ordered cake and $\frac{2}{5}$ ordered coffee. 10 ordered both. How many ordered neither?



cake $\frac{3}{8}$ of 80 = 30

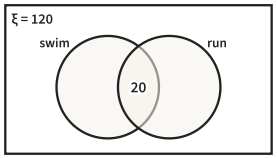
coffee ☐ of ☐ = ☐

Neither ☐ − ☐ = ☐

Answer _____

3

A club has 120 members. $\frac{2}{3}$ swim and $\frac{3}{10}$ run. 20 members do both. How many do neither?



swim ☐ of ☐ = ☐

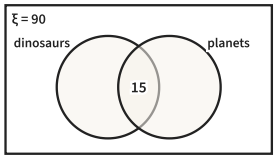
run ☐ of ☐ = ☐

Neither ☐ − ☐ = ☐

Answer _____

4

90 visitors went to a science centre. $\frac{4}{9}$ saw the dinosaurs and $\frac{1}{3}$ saw the planets. 15 saw both. How many saw neither?

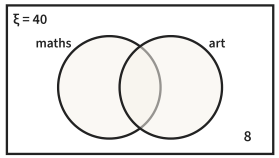


Neither ☐ − ☐ = ☐

Answer _____

5

In a class of 40, $\frac{3}{4}$ like maths and $\frac{1}{2}$ like art. 8 like neither. A pupil is picked at random. Find the probability that they like both.

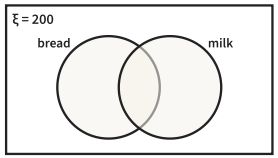


_____

Answer _____

6

200 shoppers were asked what they bought. 45% bought bread and $\frac{1}{4}$ bought milk. $\frac{1}{5}$ of the bread buyers also bought milk. How many bought neither?

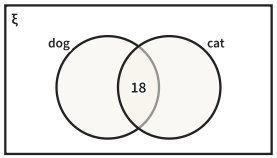


_____

Answer _____

7

$\frac{3}{5}$ of a group of people have a dog. $\frac{1}{4}$ of the dog owners also have a cat. 18 people have a dog and a cat. How many people are in the group?



_____

Answer _____

8

Of 150 people, $\frac{2}{5}$ speak French, $\frac{1}{3}$ speak Spanish and $\frac{1}{10}$ speak both. A person is picked at random. Find the probability that they speak only one of the two languages.

_____

Answer _____

Fractions and Venn diagrams *further practice*

9

48 children were asked what they ride. $\frac{5}{8}$ have a bike and $\frac{1}{3}$ have a scooter. 6 have both. How many have neither?

Answer _____

10

A gardener grew 100 plants. $\frac{7}{20}$ are tall and $\frac{2}{5}$ have red flowers. $\frac{1}{5}$ of the tall plants have red flowers.
How many plants are neither tall nor red?

Answer _____

11

60 guests ate at a wedding. $\frac{1}{2}$ had soup and $\frac{2}{5}$ had a dessert. 9 had both.
A guest is picked at random.
Find the probability that they had soup but no dessert.

Answer _____

12

160 people were asked how they get the news. $\frac{3}{8}$ read a newspaper, $\frac{5}{8}$ read news online and $\frac{1}{4}$ do neither.
How many do both?

Answer _____

13

A company has 300 workers. 40% drive to work and $\frac{1}{6}$ cycle. $\frac{1}{10}$ of the drivers also cycle on some days. A worker is picked at random. Find the probability that they neither drive nor cycle.

Answer _____

14

A Venn diagram shows 72 people. $\frac{1}{3}$ of them are in A only, $\frac{1}{4}$ are in B only and $\frac{1}{6}$ are in neither. How many are in both A and B?

Answer _____

15

A class has 30 students. $\frac{2}{3}$ play an instrument. $\frac{3}{4}$ of those who play an instrument also sing, and $\frac{1}{2}$ of the others sing. How many students sing?

Answer _____

16

In a group of 40, $\frac{1}{2}$ like tea and $\frac{3}{8}$ like coffee. 6 like both.
Amir says $\frac{1}{2} + \frac{3}{8} = \frac{7}{8}$ like tea or coffee, so 5 like neither. Explain his mistake and find how many like neither.

Answer _____