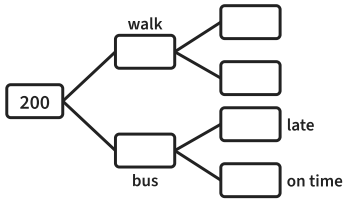
Percentages and frequency trees

ANSWERS

1

200 students were asked how they travel to school. 40% walk and the rest come by bus. 25% of the bus students arrived late. How many bus students arrived late?



walk 40% of 200 = 80

bus 200 − 80 = 120

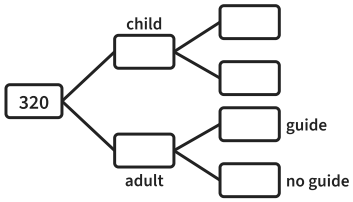
late 25% of 120 = 30

30

Answer

2

A museum had 320 visitors. 25% were children and the rest were adults. 35% of the adults bought a guidebook. How many adults bought a guidebook?



child 25% of 320 = 80

adult 320 − 80 = 240

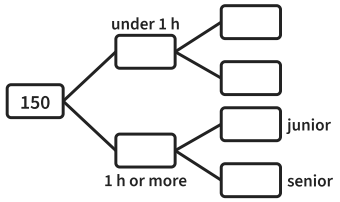
guidebook 35% of 240 = 84

84

Answer

3

150 people ran a race. 60% finished in under an hour. Of the others, 30% were juniors. How many juniors took an hour or more?



under 1 h 60% of 150 = 90

1 h or more 150 − 90 = 60

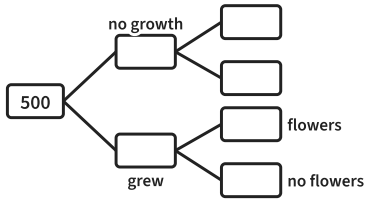
juniors 30% of 60 = 18

18

Answer

4

500 seeds were planted. 12% did not grow. 75% of the seeds that grew had flowers. How many seeds grew and had flowers?



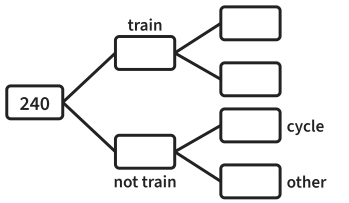
flowers 75% of 440 = 330

330

Answer

5

240 people went to a concert. $\frac{3}{8}$ went by train. 20% of the others cycled. What fraction of all the people cycled?

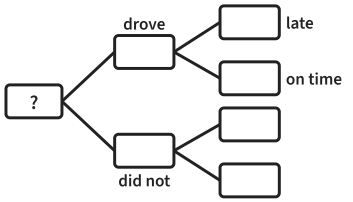


90 by train, 150 not, 20% of 150 = 30, 30 out of 240

Answer $\frac{1}{8}$

6

60% of a group of people drove to a meeting. 30% of the drivers were late. 45 drivers were late. How many people were in the group?



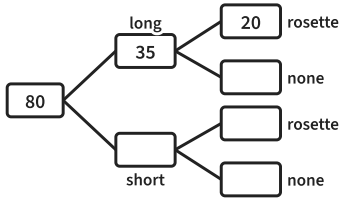
45 is 30% of the drivers, so 150 drivers; 150 is 60% of 250

250

Answer

7

80 dogs were at a show. 35 had long hair, and 20 of these won a rosette. 40% of the dogs with short hair won a rosette. What percentage of all the dogs won a rosette?



45 short haired, 40% = 18; 20 + 18 = 38 out of 80

47.5%

Answer

8

400 phones were tested. 5% were faulty. 30% of the faulty phones had a broken screen. A phone is picked at random. Find the probability that it has a broken screen.

20 faulty, 30% of 20 = 6, so 6 out of 400

Answer $\frac{3}{200}$

Percentages and frequency trees *further practice*

ANSWERS

9

600 shoppers paid for their shopping.
45% paid by card and the rest paid cash.
20% of the card payers used a phone.
How many used a phone?

45% of 600 = 270, 20% of 270 = 54

Answer *54*

10

250 cars had a safety test. 16% failed.
$\frac{3}{5}$ of the cars that failed had a problem with the brakes. How many cars failed on the brakes?

16% of 250 = 40, then three fifths of 40

Answer *24*

11

360 students were asked about pets.
$\frac{5}{9}$ of them have a pet. 30% of the students with no pet want one.
How many students want a pet?

200 have a pet, so 160 do not; 30% of 160 = 48

Answer *48*

12

$\frac{3}{5}$ of the people at a café chose coffee.
40% of the coffee drinkers took sugar.
72 coffee drinkers took sugar.
How many people were at the café?

72 is 40% of 180 coffee drinkers; 180 is three fifths of 300

Answer *300*

13

1000 people voted. 60% voted yes.
$\frac{1}{4}$ of the yes votes were sent by post, and 30% of the no votes were sent by post. What percentage of all the votes were sent by post?

150 yes and 120 no by post, 270 out of 1000

Answer *27%*

14

A box holds 300 eggs. 8% are cracked.
$\frac{1}{4}$ of the eggs that are not cracked are brown. An egg is picked at random. Find the probability that it is brown and not cracked.

276 not cracked, a quarter is 69, 69 out of 300

Answer $\frac{23}{100}$

15

40% of the members of a club are juniors. Half of the juniors swim, and 25% of the seniors swim. 70 members swim.
How many members are there?

20% + 15% = 35% swim, and 70 is 35% of 200

Answer *200*

16

40% of 300 people drove to work, and 25% of the drivers were late.
Ben says 40% + 25% = 65% of the people were late drivers. Explain his mistake and find how many were late drivers.

the 25% is of the 120 drivers, not of everyone: 25% of 120 = 30

Answer *30*