Averages and percentages

ANSWERS

1

The mean of five prices is £8. Four of them are £6, £7, £9 and £10. Find the fifth price. What percentage of the total is it?

Total $5 \times 8 =$ 40

Fifth price $40 - 32 =$ 8

Percentage $8 \div 40 \times 100 =$ 20 %

Answer £8, 20%

2

The mean mass of 6 parcels is 2.5 kg. A seventh parcel is added and the mean becomes 3 kg. What percentage of the total mass is the seventh parcel? Give your answer to 1 decimal place.

Totals 15 kg and 21 kg

Seventh parcel 6 kg

Percentage 28.6 %

Answer 28.6%

3

Jo's mean score over 4 rounds is 30. Her score in round 5 raises her mean to 32. By what percentage is her round 5 score higher than her old mean? Give your answer to 1 decimal place.

Totals 120 and 160

Round 5 score 40

Percentage 33.3 %

Answer 33.3%

4

The mean of 8 numbers is 15. One number is removed and the mean of the other 7 is 14. What percentage of the original total was the number removed? Give your answer to 1 decimal place.

Percentage 18.3 %

Answer 18.3%

5

A team scores 48, 52 and 56 points in three games. In the fourth game it scores 25% more than its mean so far. Find its new mean score.

mean so far 52, fourth game
52 × 1.25 = 65, then 221 ÷ 4

Answer 55.25

6

Three tests are each marked out of 40. Sam scores 75%, 60% and 90%. Find his mean mark out of 40.

marks 30, 24 and 36

Answer 30

7

Last year the mean time of 10 runners was 50 minutes. This year 9 of them take 405 minutes in total and the tenth takes 54 minutes. Find the percentage decrease in the mean time.

new mean 459 ÷ 10 = 45.9;
4.1 ÷ 50 × 100

Answer 8.2%

8

Class A has 20 pupils with a mean score of 60. Class B has 30 pupils with a mean score of 70. Find the mean of all 50 pupils. By what percentage is it higher than the mean of class A?

1200 + 2100 = 3300, ÷ 50 = 66;
6 ÷ 60 × 100

Answer 66, 10%

Averages and percentages *further practice*

ANSWERS

9

The mean salary of 6 people is £25,000. One person gets a 12% pay rise and the mean becomes £25,600. Find that person's salary before the rise.

the total went up 6 × £600 = £3,600, which is 12%

Answer £30,000

10

A shop's mean daily takings over 5 days are £420. On the sixth day the takings are 15% below that mean. Find the mean daily takings over the 6 days.

sixth day 420 × 0.85 = £357; 2457 ÷ 6

Answer £409.50

11

A test is marked out of 80. Ali scores 65%, Ben 70%, Cara 85% and Dev 60%. Find their mean mark.

marks 52, 56, 68 and 48

Answer 56

12

The mean of five numbers is 20. One of the numbers is increased by 50% and the mean becomes 22. Find that number.

the total rose by 10, which is half the number

Answer 20

13

Group A is 12 people with a mean height of 160 cm. Group B is 8 people with a mean height of 170 cm. By what percentage is the mean height of all 20 people more than the mean of group A?

combined mean 3280 ÷ 20 = 164 cm

Answer 2.5%

14

A batter's mean score over 9 innings is 36. After the tenth innings the mean has gone up by 5%. What did the batter score in the tenth innings?

new mean 37.8, total 378 − 324

Answer 54

15

In a sample of 25 apples the mean mass is 120 g. 20% of the apples have a mean mass of 100 g. Find the mean mass of the rest.

20% of 25 is 5 apples:
3000 − 500 = 2500 g for 20 apples

Answer 125 g

16

Ella scores 40% on a test out of 20, 60% on a test out of 50 and 80% on a test out of 100. She says her overall percentage is 60%. Explain her mistake and find her overall percentage.

the tests have different totals:
8 + 30 + 80 = 118 out of 170

Answer 69.4%