

1. New member joins group – % difference from original mean

Five students scored 64, 68, 72, 70, and 76 on a test. A sixth student joins the group, and the new mean becomes 71.

a) What score did the sixth student get?
b) What is the percentage difference between this score and the mean of the original five students?

of the original five students?

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2. New member joins group – % difference from original mean

Six employees received bonuses of £800, £850, £870, £810, £860, and £820. A seventh employee joins the group, and the new mean bonus becomes £860.

a) What bonus did the seventh employee get?b) What percentage higher is their bonus compared to the average of the original six?

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3. Grouped frequency – % in a certain range + estimated mean

A group of students recorded how long they revised per day:

Minutes Studied	Frequency
0–30	2
30–60	4
60–90	5
90–120	3

a) Estimate the mean number of minutes studied per day.
 b) What percentage of students studied for more than 60 minutes?

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4. Grouped frequency – % in a certain range + estimated mean

A survey asked how long people waited to be served in a café:

Waiting Time (mins)	Frequency
0–10	1
10–20	3
20–40	5
40–60	7
60–90	4

a) Estimate the mean waiting time.

b) What percentage of customers waited 40 minutes or more?

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5. Reverse percentage from mean increase

This season a team's average score is 60 points. This is a 25% increase on their score from las season.

a) What was their average score last season?b) If the are 10 games per season, how many more points did they

score this season compared to last season?

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6. Reverse percentage from mean increase

This year a company's average monthly sales increased to £2,478. After improving their marketing, the average rose by 18% from the last year.

a) What was their average monthly sales figure for last year?b) How much more, in pounds, is this years annual revenue compared to last?

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7. Reverse-engineering a total using % and mean

A student spends 60% of their total study time revising maths. They revise for 3 hours of maths per day over 5 days. The mean total study time per day (including all subjects) is the same each day.

a) What is the total number of study hours in the 5 days?b) If they chose to not revise on the weekend, what will be their mean study time per day over the whole week (7 days)?

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8. Reverse-engineering a total using % and mean

An athlete uses 65% of their weekly training time for running. They run for 7.8 hours per week. Each day, they train for the same amount of time.

a) What is the total number of hours they train per week?

b) What is the mean number of hours trained per day?

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9. Reverse-engineering a total using % and mean

A class has 10 students. Their mean test score is 65. A second class has 20 students with a mean test score of 80.

a) What is the overall mean score for all 30 students?b) What percentage of the total score came from the second class?



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10. Reverse-engineering a total using % and mean

Group A has 12 members with an average weight of 72 kg. Group B has 18 members with an average weight of 78 kg.

a) What is the combined mean weight of all 30 people?b) What percentage of the total combined weight came from Group B?



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