

19. Finding Averages

The average of a group of numbers is a summary of the numbers as a group. An average is calculated by adding the numbers together and then dividing the sum by the number of addends. Two other terms that mean the same as "average" are **arithmetic average** and **arithmetic mean**. (*Arithmetic* is pronounced /ă-r'ith-met'ik/ in these terms.)

An average helps you to better understand a group of numbers. It shows what the numbers would be if they were all the same. For example, each grade on your report card shows what your grades in that subject would have been if they had all been the same throughout the marking period. This helps you and your parents to understand how well you are doing with your school work. Think of how hard it would be to compare all your grades for this marking period with all those for the previous period. It is much simpler to compare averages.

In finding averages, the division does not always come out even. The remainder is often expressed as a fraction, with the remainder as the numerator and the divisor as the denominator.

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| Find the average of these numbers. 85, 74, 79, 77, 83, 91 | 85 74 79 77 83 + 91 <hr style="width: 50px; margin: 0 auto;"/> 489 | $81\frac{3}{6} = 81\frac{1}{2}$ $6 \overline{)489}$ |
|--|--|--|

The remainder should be expressed as a fraction only when it is logical to do so. For example, if the numbers in the box refer to the high temperatures on six days, it would be logical to express the average as $81\frac{1}{2}^{\circ}$. But if the numbers refer to people, it would not be logical to give the average as $81\frac{1}{2}$ people. Instead, the average should be rounded to the nearest whole number and stated as 82 people.

CLASS PRACTICE

Find the average of each set of numbers.

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|---------------------------|-----------------|---------------------------------|-------------------|
| a. 8, 9, 11, 7, 4, 9 | 8 | b. 18, 19, 14, 21, 18, 0 | 15 |
| c. 58, 69, 55, 43, 71, 69 | $60\frac{5}{6}$ | d. 98%, 88%, 84%, 92%, 83%, 99% | $90\frac{2}{3}\%$ |

WRITTEN EXERCISES

A. Find the average of each set of numbers. Express remainders as fractions.

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|-------------------|-----------------|-----------------------|------------------|
| 1. 89, 93, 75 | $85\frac{2}{3}$ | 2. 341, 415, 398 | $384\frac{2}{3}$ |
| 3. 93, 81, 95, 93 | $90\frac{1}{2}$ | 4. 125, 132, 120, 131 | 127 |