

Reasoning and Problem Solving – The Mean

National Curriculum Objectives:

Mathematics Year 6: (6S3) [Calculate and interpret the mean as an average](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Use knowledge of calculating the mean to find the missing digit.

Questions include 1 digit numbers. (Answers in whole numbers).

Expected Use knowledge of calculating the mean to find the missing digits. Questions include 1 and 2 digit numbers. (Answers including numbers with 1 decimal place).

Greater Depth Use knowledge of calculating the mean to find the missing digits. Questions include 2 and 3 digit numbers. (Answers including numbers with up to 2 decimal places).

Questions 2, 5 and 8 (Problem Solving)

Developing Word problem including 3 number clues used to work out the mean.

Questions include 1 digit numbers. (Answers in whole numbers).

Expected Word problem including 3 number clues used to work out the mean.

Questions include 1 and 2 digit numbers. (Answers including numbers with 1 decimal place).

Greater Depth Word problem including 3 number clues used to work out the mean. Questions include 2 and 3 digit numbers. (Answers including numbers with up to 2 decimal places).

Questions 3, 6 and 9 (Reasoning)

Developing Given a statement about working out the mean, decide whether the method or answer is correct. Questions include 1 digit numbers. (Answers in whole numbers).

Expected Given a statement about working out the mean, decide whether the method or answer is correct. Questions include 1 and 2 digit numbers. (Answers including numbers with 1 decimal place).

Greater Depth Given a statement about working out the mean, decide whether the method or answer is correct. Questions include 1 digit numbers. (Answers in whole numbers).

More [Year 6 Statistics](#) resources.

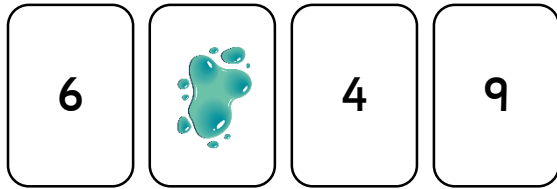
Did you like this resource? Don't forget to [review](#) it on our website.

classroomsecrets.com

Reasoning and Problem Solving – The Mean – Teaching Information

Reasoning and Problem Solving – The Mean

1a. Semaj knows that the mean of his cards is 7.

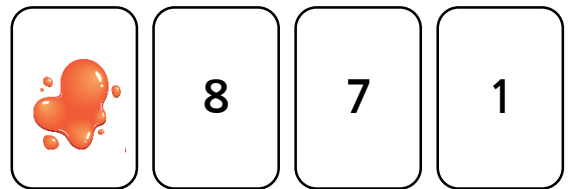


He spilled paint on 1 of his cards. What is the missing number?



PS

1b. Diana knows that the mean of her cards is 6.



He spilled paint on 1 of his cards. What is the missing number?



PS

2a. Three friends are trying to work out their mean amount of pets. Sally has 7 more pets than Rylan. Rylan has 2 less pets than José who has 4.



What is their mean amount of pets?



PS

2b. Three friends are trying to work out their mean shoe size. Abdul is 2 sizes bigger than Luca. Luca is 1 size smaller than Jane who is size 6.



What is their mean shoe size?



PS

3a. Felicia has worked out the mean of four numbers: 9, 3, 6 and 5.



To work out the mean, I put the numbers in order, found the sum and then divided by 4.

Do you agree with Felicia's method? Why?



R

3b. Howard has worked out the mean of five numbers: 9, 5, 6, 2 and 8.



To find the mean, I found the sum of the numbers and divided it by 5. The answer is 5.

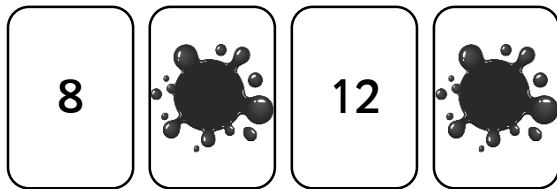
Do you agree with Howard's answer? Why?



R

Reasoning and Problem Solving – The Mean

4a. Lucie knows that the mean of her cards is 10.

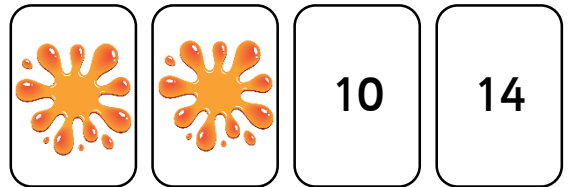


She spilled paint on 2 of her cards. What could the missing numbers be?



PS

4b. Reese knows that the mean of his cards is 14.

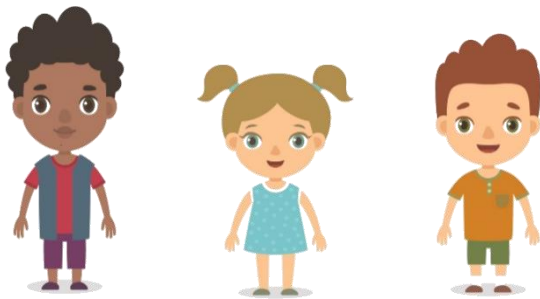


He spilled paint on 2 of his cards. What could the missing numbers be?



PS

5a. Three friends are trying to work out their mean height. Zain is 7cm taller than Marie. Marie is 5cm smaller than Oliver. Oliver is 185cm tall.

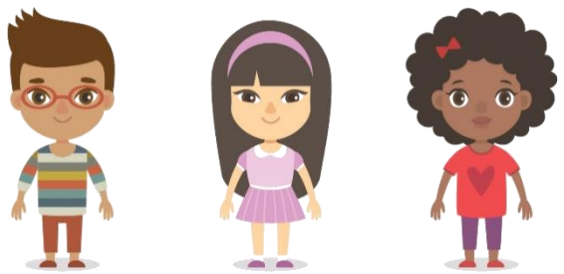


What is their mean height?



PS

5b. Three friends are trying to work out their mean age. Heath is 6 years younger than Brie. Brie is 3 years older than Beth. Beth is 28.



What is their mean age?



PS

6a. Tamara has worked out the mean of four numbers: 11, 18, 27 and 4.



To work out the mean, I found the sum of the numbers and then divided them by 5.

Do you agree with Tamara's method? Why?



R

6b. Elton has worked out the mean of five numbers: 15, 63, 51, 24 and 6.



To work out the mean, I found the sum of the numbers and then divided them by 5. The answer is 31.8.

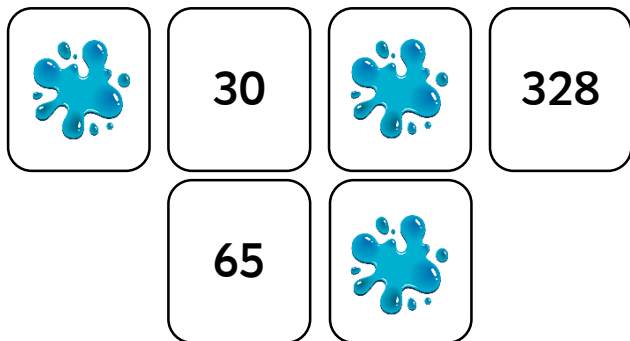
Do you agree with Elton's answer? Why?



R

Reasoning and Problem Solving – The Mean

7a. Caroline knows that the mean of her cards is 109.

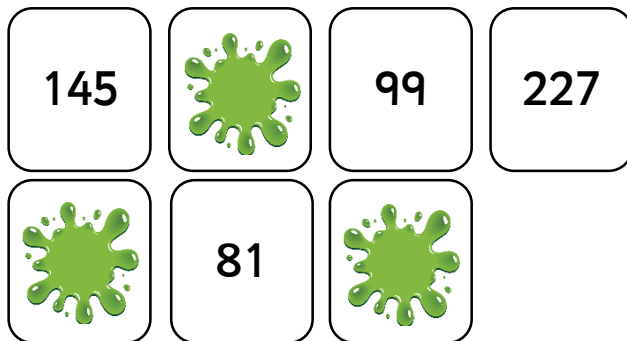


She spilled paint on 3 of her cards. What could the missing numbers be?



PS

7b. Oliver knows that the mean of his cards is 146.



He spilled paint on 3 of his cards. What could the missing numbers be?



PS

8a. Three friends are trying to find their mean weight. Colton is 5.2kg lighter than Bryce. Bryce is 1.4kg heavier than Jovan who is 75.8kg.

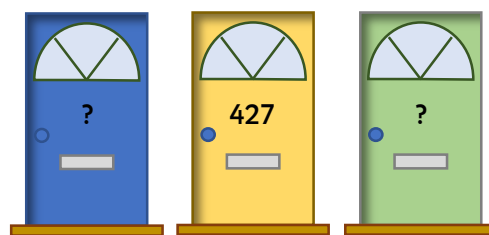


What is their mean weight?



PS

8b. Three friends are trying to work out the mean of their house numbers. Sandra lives 5 doors down from Julie. Julie lives 1 door up from Meredith who lives at number 427.



What is the mean house number?



PS

9a. Darren has worked out the mean of five numbers: 154, 16, 87, 142 and 100.



To work out the mean, I used column addition to find the sum of the numbers, then I divided it by 5.

Do you agree with Darren's method? Why?



R

9b. Nina has worked out the mean of six numbers: 321, 320, 12, 98, 145, and 45.



To work out the mean, I found the sum of the numbers and then divided them by 6. The answer is 153.83.

Do you agree with Nina's answer? Why?



R

Reasoning and Problem Solving – The Mean

Developing

- 1a. 9
1b. 8
2a. $4 + 2 + 9 = 15$, $15 \div 3 = 5$
2b. $6 + 5 + 7 = 18$, $18 \div 3 = 6$
3a. No, she has put the numbers in order unnecessarily. Yes, but she has put the numbers in order unnecessarily.
3b. No, he has used the correct method but $30 \div 5 = 6$, not 5.

Expected

- 4a. Any two numbers with a sum of 20.
4b. Any two numbers with a sum of 32.
5a. $185 + 180 + 187 = 552$, $552 \div 3 = 184\text{cm}$
5b. $28 + 31 + 25 = 84$, $84 \div 3 = 28$
6a. No. She has divided the sum of the numbers by 5 instead of 4.
6b. Yes. $159 \div 5 = 31.8$

Greater Depth

- 7a. Any three numbers with a sum of 231.
7b. Any three numbers with a sum of 470.
8a. $75.8\text{kg} + 77.2\text{kg} + 72\text{kg} = 225\text{kg}$, $225\text{kg} \div 3 = 75\text{kg}$
8b. $427 + 429 + 419 = 1,277$, $1,277 \div 3 = 425$
9a. Yes. He used the correct method to find the mean.
9b. No. $941 \div 6 = 156.83$