

Maths Mastery

Estimation

Challenge Cards



Maths Mastery - Estimation

1. Nikita estimates the answers to these calculations to check the answers. Can you check them using the same method:

$$6702 + 35\,782 = 41\,484$$

$$1.59 - 0.82 = 0.77$$

$$23.2 + 56.8 = 80$$

$$92\,012 - 34\,988 = 56\,924$$

$$46 \times 6 = 296$$

$$234 \div 4 = 58.5$$

$$1.08 \times 14 = 15.12$$

$$4.17 \div 3 = 1.19$$



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2. George completes the calculation:

$$7019 \times 26 = 192\,494$$

Explain how you would check the answer using estimation.

Write your own question for a partner to explain a way to check.



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3. Pavel researches attendance in the 2015/16 Premier League season. The top 5 attendances for home games were:

Manchester United: 1 430 430

Arsenal FC: 1 138 934

Manchester City: 1 026 776

Newcastle United: 945 317

Liverpool FC : 834 285



A journalist says that the total attendance at these 5 clubs is $5\frac{1}{2}$ million. Explain whether this is an accurate rounding of the totals.

4. Pavel writes calculations, but some of them are not correct. Can you find the incorrect calculations?

$$267 + 633 = 900$$

$$505 + 495 = 900$$

$$828 + 72 = 900$$

$$339 + 571 = 900$$

$$752 + 148 = 900$$

Explain to a partner how you spotted it.

Write some for a partner to solve.

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5. Nikita says, "Council tax for my house is £92 per month, which means it's £1200 per year."

Explain why Nikita could improve her estimate.

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6. George eats 40g of cereals each morning. Estimate how many kilograms of cereals he eats in a year.



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7. Nikita has a set of digit cards, 0-9. She chooses 4 cards.

Nikita tries to make 2 numbers with the cards with a total nearest to 100. What numbers can she make?

Use a set of cards yourself and take 4 cards. Work with a partner. Who can find the closest total to 100.

Try 6 cards to make a total nearest to 1000.

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Year 6 Maths Mastery Challenge Cards

Estimation - Answers

1. $6702 + 35\,782 = 41\,484$ Incorrect: 42 484
 $1.59 - 0.82 = 0.77$ Correct
 $23.2 + 56.8 = 80$ Correct
 $92\,012 - 34\,988 = 56\,924$ Incorrect: 57 024
 $46 \times 6 = 296$ Incorrect
 $234 \div 4 = 58.5$ Correct
 $1.08 \times 14 = 15.12$ Correct
 $4.17 \div 3 = 1.19$ Incorrect: 1.39

2. $\times 26$ is approximately $\times 100 \div 4$ (half of half)

Or more accurately $\times 100 \div 4 + 1$ more.

Using 7000 as a close approximation of 7019.

$7000 \times 100 = 700\,000$; $700\,000 \div 2 = 350\,000$; $350\,000 \div 2 = 175\,000$;

$175\,000 + 7000 = 182\,000$. 192 494 is wrong.

3. 5 375 742

4. $505 + 495 = 900$ x **1000 5 hundreds and 4 hundreds means the answer is more than 900**

$339 + 571 = 900$ x **910 3 tens and 7 tens gives 10 tens and the remaining ones so the answer is not a round hundred.**

5. £1100 is a better estimate.

£92 is £8 less than £100, so $\text{£}100 \times 12 = \text{£}1200$ and $\text{£}8 \times 12 = \text{£}96 \approx \text{£}100$, $\text{£}1200 - \text{£}100 = \text{£}1100$

6. $365 \times 4 \approx 1500$,

$40\text{g} = 0.04\text{kg}$

$365 \times 0.04\text{g} \approx 15\text{kg}$

7. $79 + 34 = 113$