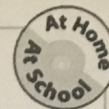


Estimating Quotients to Solve Problems



Quick Review

Here are some strategies you can use to estimate quotients.

- Estimate: $984 \div 5$

Look for **compatible numbers**.

984 is close to 1000.

1000 is 10 hundreds.

$$10 \text{ hundreds} \div 5 = 2 \text{ hundreds} \\ = 200$$

$984 \div 5$ is about 200.

This is an overestimate because $1000 > 984$.

- Estimate: $364 \div 5$

Use front-end rounding.

$364 \div 5$ is about $300 \div 5$.

$$30 \div 5 = 6, \text{ so } 300 \div 5 = 60$$

The estimate is low.

To get a closer estimate, look at the first 2 digits of the dividend:

$$\mathbf{364} \div \mathbf{5}$$

$35 \div 5 = 7$, so $36 \div 5$ is close to 7.

So, $364 \div 5$ is about $350 \div 5 = 70$

Compatible numbers are numbers that are easy to use mentally.

Try These

1. Estimate each quotient.

a) $273 \div 5$

60

b) $942 \div 6$

150

c) $470 \div 8$

60

d) $984 \div 3$

330

e) $789 \div 9$

90

f) $447 \div 4$

110

Practice

1. Estimate each quotient.

a) $351 \div 7$ b) $429 \div 5$ c) $632 \div 8$ d) $472 \div 6$
50 80 80 80

e) $209 \div 4$ f) $221 \div 3$ g) $994 \div 5$ h) $884 \div 9$
50 70 200 100

2. Sydney has 893 collector's coins. He wants to mount them in groups of 9.

About how many groups can he make? 100 groups

3. Bruno travelled 785 km in one week.

About how far did he travel each day? 110 km each day

4. Maude made 140 g of trail mix.

About how much can she serve to each of 8 guests? 20 g to each guest

5. About how many Saturdays are there in 1 year? 50 Saturdays

6. One hundred ninety-one children signed up for basketball.

About how many teams of 9 can the coaches make? 20 teams

7. Crayons are packaged in boxes of 8.

About how many boxes can be filled with 250 crayons? 30 boxes

Stretch Your Thinking

Arnold estimated that $847 \div 8$ is about 100. Was his estimate high or low? Explain.

Low. $8 \times 100 = 800 < 847$.