

Place the First Digit

When you divide, you can use estimation or place value to place the first digit of the quotient.

Divide.

$$6 \overline{)1,266}$$

- Estimate. $1,200 \div 6 = 200$, so the first digit of the quotient is in the hundreds place.
- Divide the hundreds.
- Divide the tens.
- Divide the ones.

So, $1,266 \div 6 = 211$.

Since 211 is close to the estimate, 200, the answer is reasonable.

$$\begin{array}{r} 211 \\ 6 \overline{)1,266} \\ \underline{-12} \\ 06 \\ \underline{-6} \\ 06 \\ \underline{-6} \\ 0 \end{array}$$

Divide.

$$8,895 \div 8$$

- Use place value to place the first digit.
- Look at the first digit.
If the first digit is less than the divisor, then the first digit of the quotient will be in the hundreds place.
If the first digit is greater than or equal to the divisor, then the first digit of the quotient will be in the thousands place.
- Since 8 thousands can be shared among 8 groups, the first digit of the quotient will be in the thousands place. Now divide.

So, $8,895 \div 8$ is 1,111 r7.

$$\begin{array}{r} 1,111 \text{ r}7 \\ 8 \overline{)8,895} \\ \underline{-8} \\ 08 \\ \underline{-8} \\ 09 \\ \underline{-8} \\ 15 \\ \underline{-8} \\ 7 \end{array}$$

Divide.

1. $3 \overline{)627}$

2. $5 \overline{)7,433}$

3. $4 \overline{)5,367}$

4. $9 \overline{)6,470}$

5. $8 \overline{)2,869}$

6. $6 \overline{)1,299}$

7. $4 \overline{)893}$

8. $7 \overline{)4,418}$

Divide by 1-Digit Divisors

You can use compatible numbers to help you place the first digit in the quotient. Then you can divide and check your answer.

Divide. $4\overline{)757}$

Step 1 Estimate with compatible numbers to decide where to place the first digit.

$$757 \div 4$$



$$800 \div 4 = 200$$

The first digit of the quotient is in the hundreds place.

Step 2 Divide.

$$\begin{array}{r} 189 \text{ r}1 \\ 4\overline{)757} \\ \underline{-4} \\ 35 \\ \underline{-32} \\ 37 \\ \underline{-36} \\ 1 \end{array}$$

Step 3 Check your answer.

$$\begin{array}{r} 189 \leftarrow \text{quotient} \\ \times 4 \leftarrow \text{divisor} \\ \hline 756 \\ + 1 \leftarrow \text{remainder} \\ \hline 757 \leftarrow \text{dividend} \end{array}$$

Since 189 is close to the estimate of 200, the answer is reasonable.

So, $757 \div 4$ is 189 r1.

Divide. Check your answer.

1. $8\overline{)136}$

2. $7\overline{)297}$

3. $5\overline{)8,126}$

4. $7\overline{)4,973}$

5. $3\overline{)741}$

6. $7\overline{)456}$

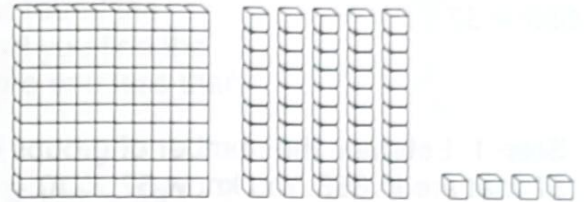
Name _____

Division with 2-Digit Divisors

You can use base-ten blocks to model division with 2-digit divisors.

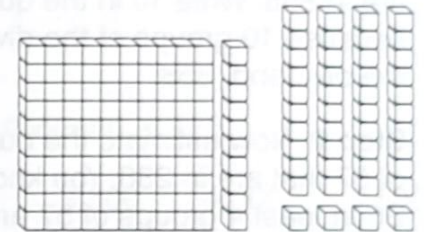
Divide. $154 \div 11$

Step 1 Model 154 with base-ten blocks.



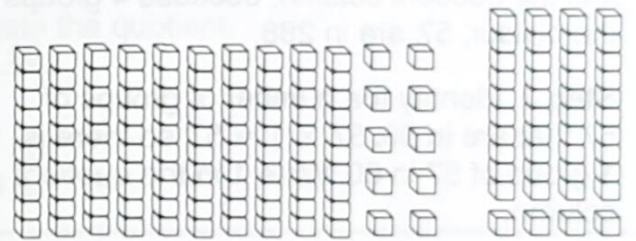
Step 2 Make equal groups of 11. Each group should contain 1 ten and 1 one.

You can make 4 groups of 11 without regrouping.



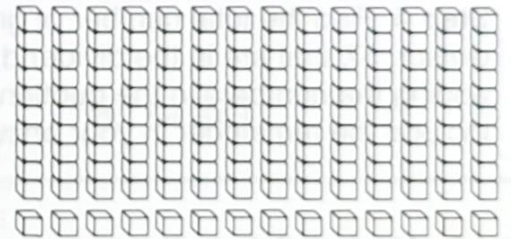
Step 3 Regroup 1 hundred as 10 tens.

Regroup 1 ten as 10 ones.



Step 4 Use the regrouped blocks to make as many groups of 11 as possible. Then count the total number of groups.

There are 14 groups. So, $154 \div 11 = \underline{14}$.



Divide. Use base-ten blocks.

1. $192 \div 12$ _____

2. $182 \div 14$ _____

Name _____

Partial Quotients

Divide. Use partial quotients.

$$858 \div 57$$

Step 1 Estimate the number of groups of 57 that are in 858. You know $57 \times 10 = 570$. Since $570 < 858$, at least 10 groups of 57 are in 858. Write 10 in the quotient column, because 10 groups of the divisor, 57, are in the dividend, 858.

	Quotient
858	
<u>-570</u>	10
288	

Step 2 Now estimate the number of groups of 57 that are in 288. You know $60 \times 4 = 240$. So at least 4 groups of 57 are in 288. Subtract 228 from 288, because $57 \times 4 = 228$. Write 4 in the quotient column, because 4 groups of the divisor, 57, are in 288.

288	4
<u>-228</u>	
60	

Step 3 Identify the number of groups of 57 that are in 60. $57 \times 1 = 57$, so there is 1 group of 57 in 60. Write 1 in the quotient column.

60	+ 1
<u>-57</u>	15
3	

remainder \rightarrow

Step 4 Find the total number of groups of the divisor, 57, that are in the dividend, 858, by adding the numbers in the quotient column. Include the remainder in your answer.

Answer: 15 r3

Divide. Use partial quotients.

1. $17 \overline{)476}$

2. $14 \overline{)365}$

3. $25 \overline{)753}$

4. $462 \div 11$

5. $1,913 \div 47$

6. $1,085 \div 32$

Name _____

Estimate with 2-Digit Divisors

You can use *compatible numbers* to estimate quotients. Compatible numbers are numbers that are easy to compute with mentally.

To find two estimates with compatible numbers, first round the divisor. Then list multiples of the rounded divisor until you find the two multiples that are closest to the dividend. Use the one less than and the one greater than the dividend.

Use compatible numbers to find two estimates. $4,125 \div 49$

Step 1 Round the divisor to the nearest ten.
49 rounds to 50.

Step 2 List multiples of 50 until you get the two closest to the dividend, 4,125.

Some multiples of 50 are:

500 1,000 1,500 2,000 2,500 3,000 3,500 4,000 4,500
4,000 and 4,500 are closest to the dividend.

Step 3 Divide the compatible numbers to estimate the quotient.
 $4,000 \div 50 = \underline{80}$ $4,500 \div 50 = \underline{90}$

The more reasonable estimate is $4,000 \div 50 = 80$, because 4,000 is closer to 4,125 than 4,500 is.

Use compatible numbers to find two estimates.

1. $42 \overline{)1,578}$

2. $73 \overline{)4,858}$

3. $54 \overline{)343}$

4. $4,093 \div 63$

5. $4,785 \div 79$

6. $7,459 \div 94$

Use compatible numbers to estimate the quotient.

7. $847 \div 37$

8. $6,577 \div 89$

9. $218 \div 29$

Name _____

Divide by 2-Digit Divisors

When you divide by a 2-digit divisor, you can use estimation to help you place the first digit in the quotient. Then you can divide.

Divide. $53 \overline{)2,369}$

Step 1 Use compatible numbers to estimate the quotient. Then use the estimate to place the first digit in the quotient.

$$\begin{array}{r} 40 \\ 50 \overline{)2,000} \end{array}$$

The first digit will be in the tens place.

Step 2 Divide the tens.

$$\begin{array}{r} 4 \\ 53 \overline{)2,369} \\ - 212 \\ \hline 24 \end{array}$$

Think:

Divide: 236 tens \div 53

Multiply: 53×4 tens = 212 tens

Subtract: 236 tens $-$ 212 tens

Compare: $24 < 53$, so the first digit of the quotient is reasonable.

Step 3 Bring down the 9 ones. Then divide the ones.

$$\begin{array}{r} 44 \text{ r}37 \\ 53 \overline{)2,369} \\ - 212 \downarrow \\ \hline 249 \\ - 212 \\ \hline 37 \end{array}$$

Think:

Divide: 249 ones \div 53

Multiply: 53×4 ones = 212 ones

Subtract: 249 ones $-$ 212 ones

Compare: $37 < 53$, so the second digit of the quotient is reasonable.

So, $2,369 \div 53$ is 44 r37.

Write the remainder to the right of the whole number part of the quotient.

Divide. Check your answer.

1. $52 \overline{)612}$

2. $63 \overline{)917}$

3. $89 \overline{)1,597}$

4. $43 \overline{)641}$

5. $27 \overline{)4,684}$

6. $64 \overline{)8,455}$