

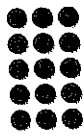
Division Fact Strategies

GOAL

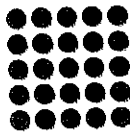
Use strategies to relate unknown facts to known facts.

1. Use the array to complete each equation.

a) $15 \div 5 = \underline{\hspace{2cm}}$



b) $25 \div 5 = \underline{\hspace{2cm}}$



2. Sketch an array to determine each quotient.

a) $12 \div 3 = \underline{\hspace{2cm}}$

b) $24 \div 4 = \underline{\hspace{2cm}}$

d) $40 \div 5 = \underline{\hspace{2cm}}$

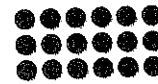
c) $21 \div 3 = \underline{\hspace{2cm}}$

e) $42 \div 6 = \underline{\hspace{2cm}}$

At-Home Help

You can use arrays to complete division equations. For example: $18 \div 3 = \blacksquare$

I will use 18 counters to make an array with 3 rows.



There are 6 counters in each row, so $18 \div 3 = 6$.

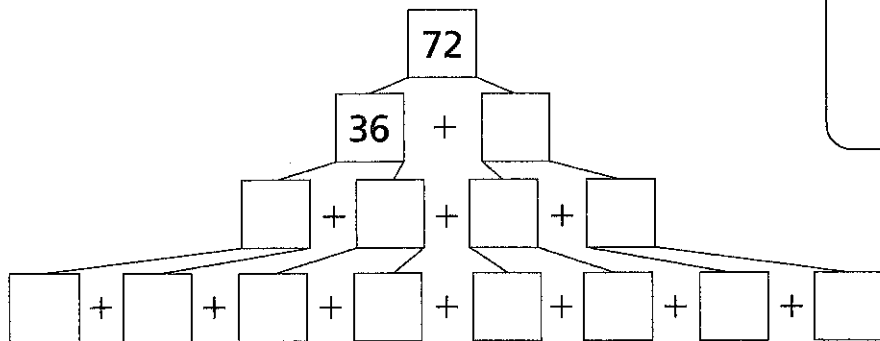
Dividing by Halving

GOAL

Relate division facts by halving.

- 20 people are sitting in 4 equal groups.
How many people are in each group?
Use dividing by 2 to calculate the number of people in each group.

- Jolie brought 72 cookies to class. She has 8 bags of cookies with the same number in each bag.
How many cookies are in each bag?



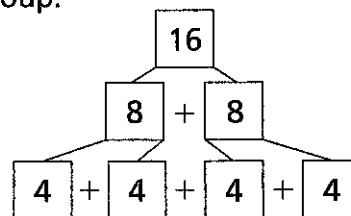
At-Home Help

You can divide by halving.

For example:

16 people are sitting in 4 equal groups. How many people are in each group?

Solution: I can divide 16 by 2 to make 2 groups of 8.
I can divide these 2 groups by 2 to make 4 groups of 4.
There are 4 people in each group.



- Calculate each quotient by dividing by 2 as many times as necessary.
Show your work.

a) $24 \div 4 = \underline{\hspace{2cm}}$

b) $64 \div 8 = \underline{\hspace{2cm}}$

c) $40 \div 4 = \underline{\hspace{2cm}}$

Dividing Tens and Hundreds

GOAL

Divide tens and hundreds by one-digit numbers.

1. Rename, and then calculate. Show your work.

a) $400 \div 2 = \underline{\hspace{2cm}}$

b) $600 \div 2 = \underline{\hspace{2cm}}$

c) $120 \div 6 = \underline{\hspace{2cm}}$

2. Calculate.

a) $240 \div 4 = \underline{\hspace{2cm}}$

c) $150 \div 3 = \underline{\hspace{2cm}}$

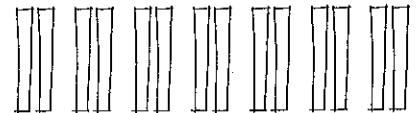
e) $\underline{\hspace{2cm}} = 900 \div 3$

b) $360 \div 9 = \underline{\hspace{2cm}}$

d) $480 \div 8 = \underline{\hspace{2cm}}$

f) $\underline{\hspace{2cm}} = 270 \div 9$

3. Tai sketched base ten blocks to calculate $140 \div 7$. Explain how Tai can calculate the quotient.



4. Sketch base ten blocks to show how calculating $800 \div 4$ is like calculating $8 \div 4$. Explain your sketch.

At-Home Help

You can rename numbers to help you divide.

Example 1: Calculate $800 \div 4$ by renaming 800 as 8 hundreds. $8 \text{ hundreds} \div 4 = 2 \text{ hundreds}$ So $800 \div 4 = 200$.

Example 2: Calculate $120 \div 3$ by renaming 120 as 12 tens. $12 \text{ tens} \div 3 = 4 \text{ tens}$ So $120 \div 3 = 40$.

Lesson 4

Estimating Quotients

GOAL

Use personal strategies to estimate quotients.

1. At Lakeport Zoo, 119 animals are in 4 groups that are mostly equal. About how many animals are in each group?



At-Home Help

You can estimate a quotient by choosing a nearby number that is easier to divide.

For example: Estimate $144 \div 3$.
144 is close to 150.
 $150 \div 3$ is the same as
 $15 \text{ tens} \div 3 = 5 \text{ tens}$, or 50.
The answer is close to 50.

2. Estimate each quotient by filling in the blanks.

a) $163 \div 2$

163 is close to 16 tens.

16 tens $\div 2 =$ 8 tens

So $163 \div 2$ is about _____.

b) $237 \div 8$

237 is close to _____ tens.

_____ tens $\div 8 =$ _____ tens

So $237 \div 8$ is about _____.

c) $418 \div 6$

418 is close to _____ tens.

_____ tens $\div 6 =$ _____ tens

So $418 \div 6$ is about _____.

d) $631 \div 9$

631 is close to _____ tens.

_____ tens $\div 9 =$ _____ tens

So $631 \div 9$ is about _____.

3. Estimate each quotient.

a) $98 \div 5$ _____

b) $324 \div 8$ _____

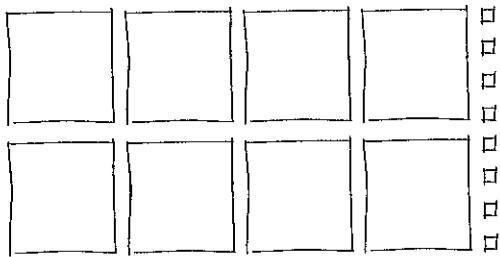
4. Owen bought 6 art posters for \$311.
About how much did each poster cost?

Exploring Division with Greater Numbers

GOAL

Use personal strategies to solve division problems.

1. Jolie has 808 g of modelling clay. She wants to make 4 creatures that have the same mass. To calculate each mass, Jolie uses base ten blocks to model 808 g.



Divide Jolie's base ten blocks into 4 equal groups to represent 4 creatures.

Sketch your groups.

What is the mass of each creature?

2. Tai divided 204 g of modelling clay into 4 equal parts. What is the mass of each part?
(Hint: Sketch 20 tens and 4 ones blocks.)

3. Use any strategy to solve each division problem.

a) 366 g of modelling clay, divided into 6 equal parts: $366 \div 6 = \underline{\hspace{2cm}}$

b) 464 g of modelling clay, divided into 8 equal parts: $464 \div 8 = \underline{\hspace{2cm}}$

At-Home Help

Here are some strategies for solving division problems:

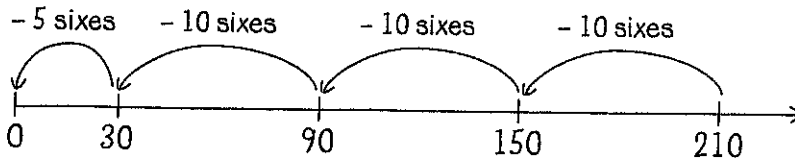
- Sketch an array.
- Divide by halving.
- Rename as tens or hundreds.
- Estimate by choosing a nearby number that is easier to divide.

Using Subtraction to Divide

GOAL

Divide by subtracting repeatedly.

1. Sydney calculated $210 \div 6$ using a number line. She started at 210 and subtracted sixes.



Use Sydney's number line to calculate the quotient. Show your work.

2. Calculate $115 \div 5$ by subtracting equal groups. Use the number line. $115 \div 5 = \underline{\hspace{2cm}}$



3. 175 students were placed in equal groups for a game.

a) If the students were put in groups of 5, how many groups were there?

b) If the students were put in groups of 7, how many groups were there?

At-Home Help

You can divide by subtracting.

For example:

Calculate $154 \div 7$.

I will subtract sevens from 154.

I will start by subtracting 10 sevens, or 70. $154 - 70 = 84$

I will subtract 10 more sevens.

$84 - 70 = 14$

I know there are 2 sevens in

14. I will add all the sevens

together. $10 + 10 + 2 = 22$,

so $154 \div 7 = 22$.

Dividing by Sharing

GOAL

Divide three-digit numbers by one-digit numbers using models and symbols.

1. Matthew made a plan to calculate $176 \div 8$.

Step 1: I need to share 176 base ten blocks into 8 groups.

I will model 176 as 17 tens and 6 ones.

Step 2: I can't share 17 tens or 6 ones into 8 groups.

So I will regroup 176 as 16 tens and 16 ones.

Step 3: I will share 16 tens and 16 ones into 8 groups.

Use Matthew's plan to calculate. Sketch your groupings of base ten blocks.

2. Calculate.

a) $8 \overline{)328}$

b) $9 \overline{)198}$

c) $5 \overline{)507}$

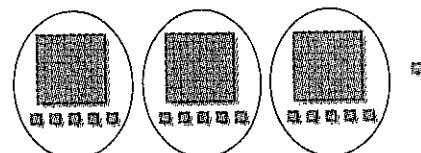
3. Desmond sorted his 187 baseball cards into groups of 6. How many groups did Desmond make? Show your work.

At-Home Help

You can divide by sharing. For example: Calculate $316 \div 3$. I will model 316 using base ten blocks.



I can share the 3 hundreds among 3 groups. I will rename the 10 and 6 ones as 16 ones. Now I can share the 16 ones among 3 groups, too.



Each group has 1 hundred and 5 ones, and there is 1 left over. So $316 \div 3 = 105$, with 1 left over.

Lesson 8

Describing Remainders as Decimals

GOAL

Solve division problems with decimal remainders.

You can use quarters and dimes to help you.

1. Express each remainder as a decimal.
Use quarters.

a) $\$183 \div 6 = \$30 \text{ R}3$

b) $\$146 \div 8 = \$18 \text{ R}2$

At-Home Help

You can use coins to express a remainder as a decimal. For example, $\$172 \div 8 = \$21 \text{ R}4$. Express the remainder as a decimal.

Solution: \$4 is the same as 16 quarters. I will share 16 quarters into 8 groups. There are 2 quarters, or \$0.50, in each group.
So $\$172 \div 8 = \21.50 .

2. Ami is dividing \$82 among her 10 friends. She calculates that each friend will get \$8, with \$2 left over. Finish Ami's calculation.
How much money does each friend get? Use dimes.

3. Five people bought lunch together for \$27. Everyone ordered the same thing.
How much should each person pay?



Interpreting Remainders

GOAL

Decide how to deal with the remainder in a division problem.

1. It takes 6 pieces of wood to make a box.
Rachel's class has 302 pieces of wood.

a) How many boxes can the class make?

b) What did you do with the remainder? Why?

2. Mateo is buying pencils for the school fair. There are
5 pencils in each package. Mateo needs 68 pencils.

a) How many packages should he buy?

b) What did you do with the remainder? Why?

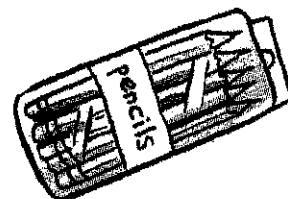
3. Six students earned \$243. They divided the money equally.

a) How much money did each student get?

b) What did you do with the remainder? Why?

At-Home Help

Read the problem to decide what to do with the remainder. For example, sometimes you can ignore the remainder. Sometimes you can use the nearest whole number. Sometimes you can express the remainder as a decimal.



Lesson 10

Solving Problems by Guessing and Testing

GOAL

Guess and test to solve division problems.

1. 240 cans were packed in equal boxes. There were fewer than 10 boxes. How many boxes could there be? List 3 possibilities.
2. Some friends sold 125 magazines to raise money for a trip. There were fewer than 10 people in the group. Each person sold the same number of magazines.
 - a) How many people were in the group? Use guessing and testing to solve.

At-Home Help

You can use guessing and testing to solve division problems. First, guess what you think the answer might be. Then check your answer. If necessary, guess again, using a higher or lower number.



- b) How many magazines did each person in the group sell?
3. Another group sold 336 magazines. There were fewer than 10 people in the group. Each person sold the same number of magazines.
 - a) How many people could be in the group? List 3 possibilities.
 - b) For each possibility, how many magazines did each person sell?

Circle the correct answer.

- Calculate $35 \div 7$.
A. 1 B. 3 C. 5 D. 7
- Calculate $42 \div 6$.
A. 6 B. 5 C. 8 D. 7
- Calculate $120 \div 6$.
A. 10 B. 20 C. 50 D. 30
- Calculate $400 \div 2$.
A. 200 B. 150 C. 75 D. 80
- Calculate $540 \div 9$.
A. 50 B. 30 C. 14 D. 60
- Estimate $322 \div 8$. Use your estimate to identify the correct answer below.
A. 20.25 B. 50.25 C. 30.25 D. 40.25
- Calculate $76 \div 4$.
A. 17 B. 19 C. 21 D. 23
- Jay and 5 friends baked 414 muffins for a bake sale.
Each person baked the same number of muffins.
How many muffins did each person bake?
A. 69 muffins B. 82 muffins C. 23 muffins D. 77 muffins
- Cara divided 123 marbles equally into 6 bags.
How many marbles were left over?
A. 1 marble B. 2 marbles C. 5 marbles D. 3 marbles
- Four people divided \$86 evenly between them.
How much money did each person get?
A. \$19.75 B. \$20.25 C. \$21.50 D. \$22.25

