

## At-Home Investigation

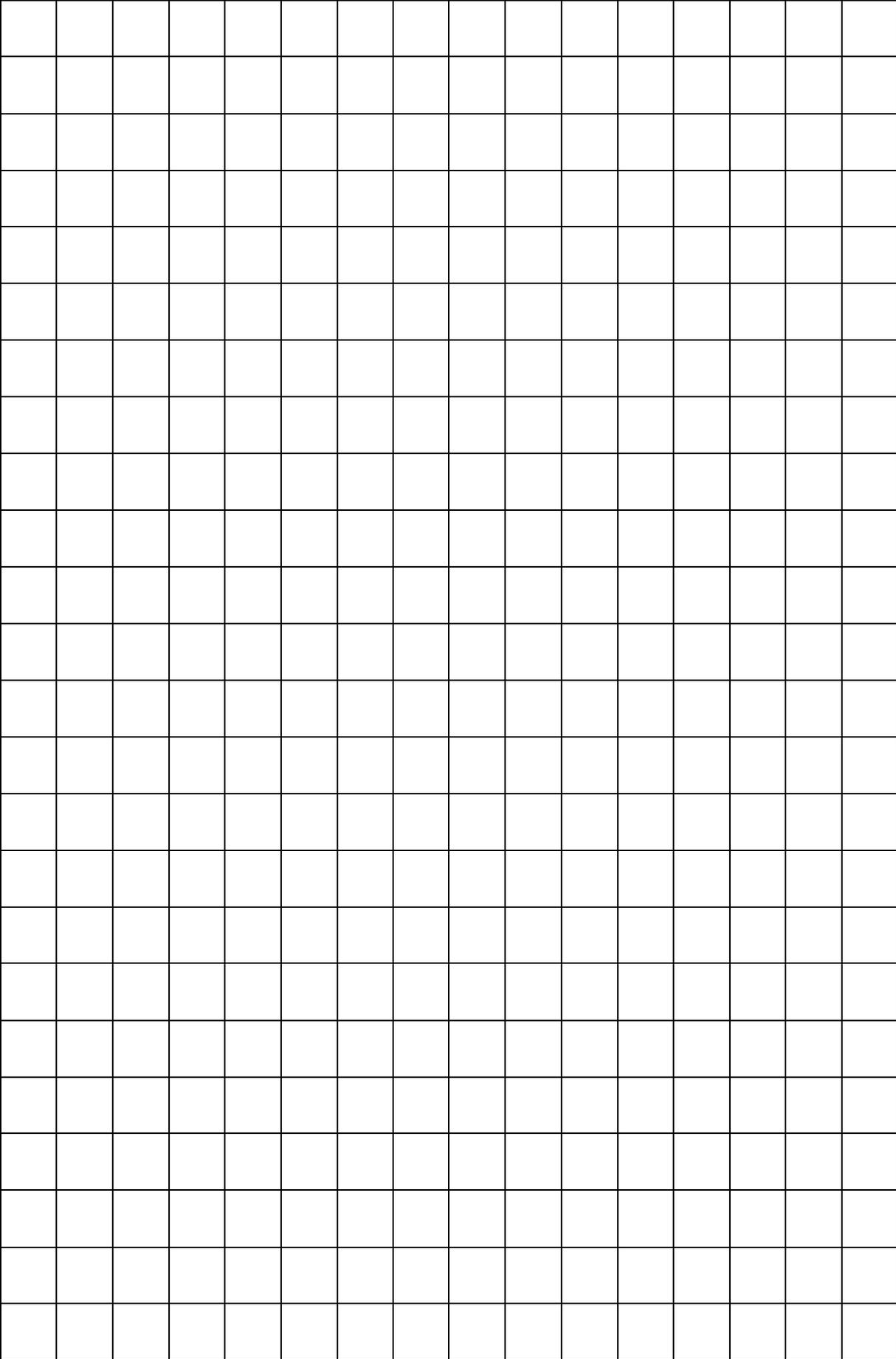
**You have \$24 to share between 5 people. How could it be done?**

Make sure that you show how much each person would receive. Show all your working.

**What would happen if you had to share the \$24 between 10 people?**

Show how much money each person would receive and explain how you did it.





## D10. Division remainders

Sometimes when you divide a number it does not fit entirely into groups. For example, if you divided 16 by 5, you would have 3 groups of five, with 1 left over.

Example 1: Leaving remainders as whole numbers

$$\begin{array}{r} 3 \text{ rem } 1 \\ 5 \overline{) 16} \end{array} \quad \begin{array}{r} 3 \text{ rem } 2 \\ 5 \overline{) 17} \end{array} \quad \begin{array}{r} 3 \text{ rem } 3 \\ 5 \overline{) 18} \end{array}$$

What is the pattern?

Example 2: Expressing remainders as common fractions

$$\begin{array}{r} 3 \frac{1}{5} \\ 5 \overline{) 16} \end{array} \quad \begin{array}{r} 3 \frac{2}{5} \\ 5 \overline{) 17} \end{array} \quad \begin{array}{r} 3 \frac{3}{5} \\ 5 \overline{) 18} \end{array}$$

What is the pattern?

Example 3: Expressing remainders as decimal fractions

$$\begin{array}{r} 3.2 \\ 5 \overline{) 16.10} \end{array} \quad \begin{array}{r} 3.4 \\ 5 \overline{) 17.20} \end{array} \quad \begin{array}{r} 3.6 \\ 5 \overline{) 18.30} \end{array}$$

What is the pattern?

**BACKWARDS QUESTION:**

Try to work out what the missing numbers are.  
Explain how you did it:

$$\begin{array}{r} 3 \text{ rem } 2 \\ 5 \overline{) \quad \quad} \end{array}$$

## Division remainders 2

☐ Use what you learned in the previous activity to help you to solve the following problems. You will need to look for where the remainder (left overs) goes.

Example 1: Leaving remainders as whole numbers

$$\begin{array}{r} 3 \text{ rem } 1 \\ 5 \overline{) 16} \end{array} \quad \begin{array}{r} 5 \overline{) 19} \end{array} \quad \begin{array}{r} 5 \overline{) 21} \end{array}$$

What is the pattern?

Example 2: Expressing remainders as common fractions

$$\begin{array}{r} 3 \frac{1}{5} \\ 5 \overline{) 16} \end{array} \quad \begin{array}{r} 5 \overline{) 19} \end{array} \quad \begin{array}{r} 5 \overline{) 21} \end{array}$$

What is the pattern?

Example 3: Expressing remainders as decimal fractions

$$\begin{array}{r} 3.2 \\ 5 \overline{) 16.0} \end{array} \quad \begin{array}{r} 5 \overline{) 19.0} \end{array} \quad \begin{array}{r} 5 \overline{) 21.0} \end{array}$$

What is the pattern?

### **BACKWARDS QUESTION:**

Try to work out what the missing numbers are.  
Explain how you did it:

$$\begin{array}{r} 3.2 \\ 6 \overline{) \phantom{00}} \end{array}$$

Multiplication practice grids:

	2	3	4	5	6	7	8	9	10
2									
3									
4									
5									
6									
7									
8									
9									
10									

	2	3	4	5	6	7	8	9	10
2									
3									
4									
5									
6									
7									
8									
9									
10									

	2	3	4	5	6	7	8	9	10
2									
3									
4									
5									
6									
7									
8									
9									
10									

	2	3	4	5	6	7	8	9	10
2									
3									
4									
5									
6									
7									
8									
9									
10									

## D11. Expressing a remainder

Sometimes different forms are more appropriate for expressing a remainder in division. Examine the following example and use it to help you answer the questions below.

**Example:** There are 31 children to be divided into 3 groups. How many in each group? Circle the most appropriate answer from those below.

$31 \div 3 =$

$10.33$

$10 \frac{1}{3}$

$10 \text{ rem } 1$

**Answer:** 10 remainder 1 is the most appropriate answer because you cannot divide a living child into fractions for different groups. They have to stay as a whole child, therefore as a remainder.

### Questions:

For each of the following questions circle the most appropriate answer from the group and justify your choice on the lines below.

1. 3 chocolate bars were split between 2 people. How much chocolate did each one receive?

1.5 bars each

$1 \frac{1}{2}$  bars each

1 bar each and 1 remainder

My Reason:

2. Gerard ran four 100m races in 54 seconds. How long did he take to run each one?

13.5 seconds each

$13 \frac{2}{4}$  seconds each

13 seconds each, remainder 2

My Reason:

3. Four people had to divide 9 books between them. How many books did each person get?

2.25 books each

$2 \frac{1}{4}$  books each

2 books each and 1 remainder

My Reason:

Describe how you decided which form was appropriate for each question.

### **BACKWARDS QUESTION:**

Danielle found that she could make  $12 \frac{1}{4}$  cookies from each batch of dough. How many batches do you think she cooked to work this out?

## Interleaved practice

Number:

1. Complete the following number sequence and describe it:

 $\frac{1}{7}, \frac{2}{7}, \underline{\quad}, \underline{\quad}, \underline{\quad}, \frac{6}{7}, \underline{\quad}, \underline{\quad}, 1\frac{2}{7}$ 

2. Find the answer and show how you worked it out.

$$\boxed{\quad} + 134 = 3 \times 76$$

3. Which number is bigger? Explain why.

32.70      or      32.07

4. Draw what  $6 \times 7$  looks like and show how you would work out the answer.

5. Year 5 is going to sell small cakes to raise money for camp. They estimate that for every batch of 12 cakes, they spend \$3.20 on ingredients. Complete the table below to show how much profit they will make if they sell the cakes for \$2 each.

Cakes	12	24	36				
Profit							

Measurement/Geometry:

6. Find a rectangular prism (box, like for cereal) and a cylinder. How many faces or curved surfaces do they each have? What do you notice about the faces, edges and vertices (corners)? How are they the same? How are they different?
7. How many hours and minutes are there between 10:45 and 14:15?
8. Use the back of this page to draw as many rectangles as you can with a perimeter of 24cm.

Chance/Data:

List all of the possible outcomes when two 6-sided dice are rolled.



5. Jemma sold 87 tickets. Each book of raffle tickets contained 10 tickets. How many books did she sell?
  
6. Nine people drank 4 and a half glasses of wine between them. How much wine was drunk by each person?
  
7. In a game of snakes and ladders the board contained 42 squares in rows. Each row contained six squares. How many rows were there altogether?
  
8. A group of people wanted to buy concert tickets. Each ticket cost \$9. The total cost was \$36. How many people were in the group?
  
9. I made \$10 every week from odd jobs. I earned \$75. How many weeks did I work?

What patterns have I found?

Now go back and use a calculator to get the answers. Comment on your findings: