DIVISION WITH REMAINDERS

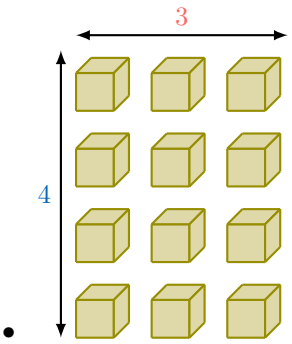
A DIVISION WITHOUT REMAINDERS

A.1 CALCULATING DIVISIONS

Ex 1:

$$12 \div 3 = \boxed{4}$$

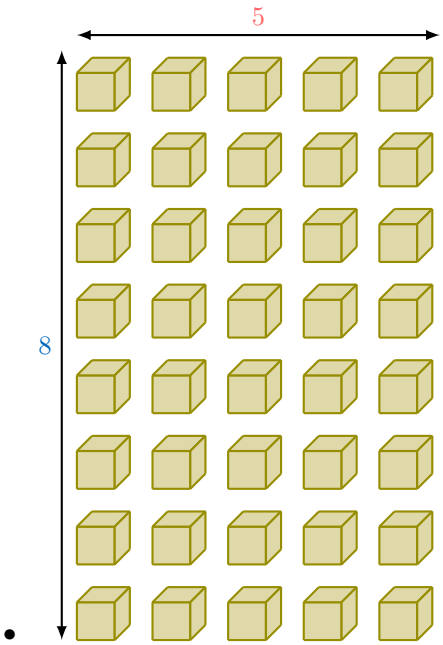
Answer:

- How many times does 3 fit into 12?
- $$\begin{aligned} 3 \times 0 &= 0 \\ 3 \times 1 &= 3 \\ 3 \times 2 &= 6 \\ 3 \times 3 &= 9 \\ 3 \times 4 &= 12 \\ 3 \times 5 &= 15 \\ 3 \times 6 &= 18 \\ 3 \times 7 &= 21 \\ 3 \times 8 &= 24 \\ 3 \times 9 &= 27 \\ 3 \times 10 &= 30 \end{aligned}$$
- As $3 \times 4 = 12$, $12 \div 3 = 4$
- 

Ex 2:

$$40 \div 5 = \boxed{8}$$

Answer:

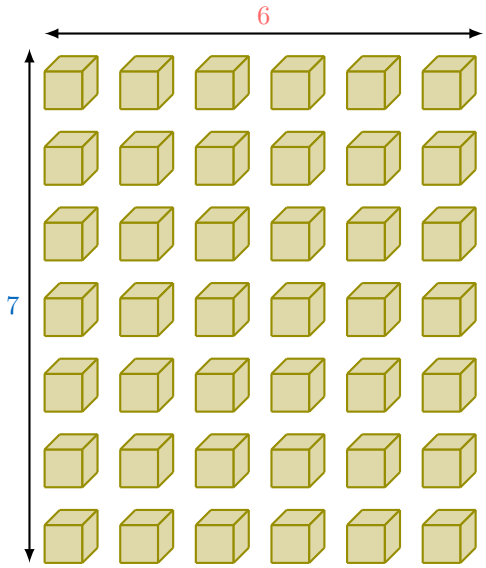
- How many times does 5 fit into 40?
- $$\begin{aligned} 5 \times 0 &= 0 \\ 5 \times 1 &= 5 \\ 5 \times 2 &= 10 \\ 5 \times 3 &= 15 \\ 5 \times 4 &= 20 \\ 5 \times 5 &= 25 \\ 5 \times 6 &= 30 \\ 5 \times 7 &= 35 \\ 5 \times 8 &= 40 \\ 5 \times 9 &= 45 \\ 5 \times 10 &= 50 \end{aligned}$$
- As $5 \times 8 = 40$, $40 \div 5 = 8$
- 

Ex 3:

$$42 \div 6 = \boxed{7}$$

Answer:

- How many times does 6 fit into 42?
- $$\begin{aligned} 6 \times 0 &= 0 \\ 6 \times 1 &= 6 \\ 6 \times 2 &= 12 \\ 6 \times 3 &= 18 \\ 6 \times 4 &= 24 \\ 6 \times 5 &= 30 \\ 6 \times 6 &= 36 \\ 6 \times 7 &= 42 \\ 6 \times 8 &= 48 \\ 6 \times 9 &= 54 \\ 6 \times 10 &= 60 \end{aligned}$$
- As $6 \times 7 = 42$, $42 \div 6 = 7$

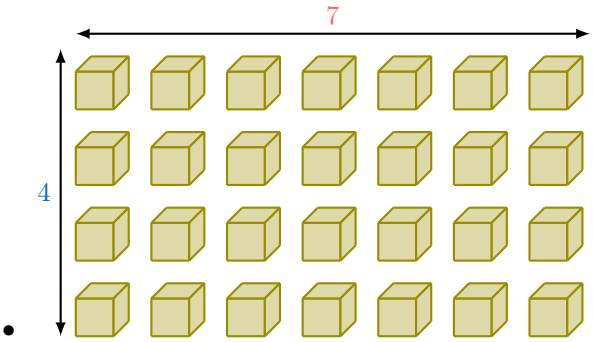


Ex 4:

$$28 \div 7 = \boxed{4}$$

Answer:

- How many times does 7 fit into 28?
- $7 \times 0 = 0$
  $7 \times 1 = 7$
  $7 \times 2 = 14$
  $7 \times 3 = 21$
  $7 \times 4 = 28$
  $7 \times 5 = 35$
  $7 \times 6 = 42$
  $7 \times 7 = 49$
  $7 \times 8 = 56$
  $7 \times 9 = 63$
  $7 \times 10 = 70$
- As $7 \times 4 = 28$, $28 \div 7 = 4$

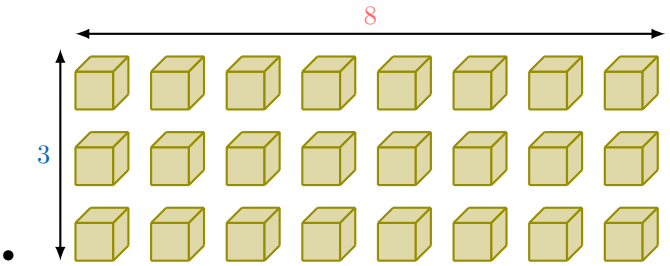


Ex 5:

$$24 \div 8 = \boxed{3}$$

Answer:

- How many times does 8 fit into 24?
- $8 \times 0 = 0$
  $8 \times 1 = 8$
  $8 \times 2 = 16$
  $8 \times 3 = 24$
  $8 \times 4 = 32$
  $8 \times 5 = 40$
  $8 \times 6 = 48$
  $8 \times 7 = 56$
  $8 \times 8 = 64$
  $8 \times 9 = 72$
  $8 \times 10 = 80$
- As $8 \times 3 = 24$, $24 \div 8 = 3$

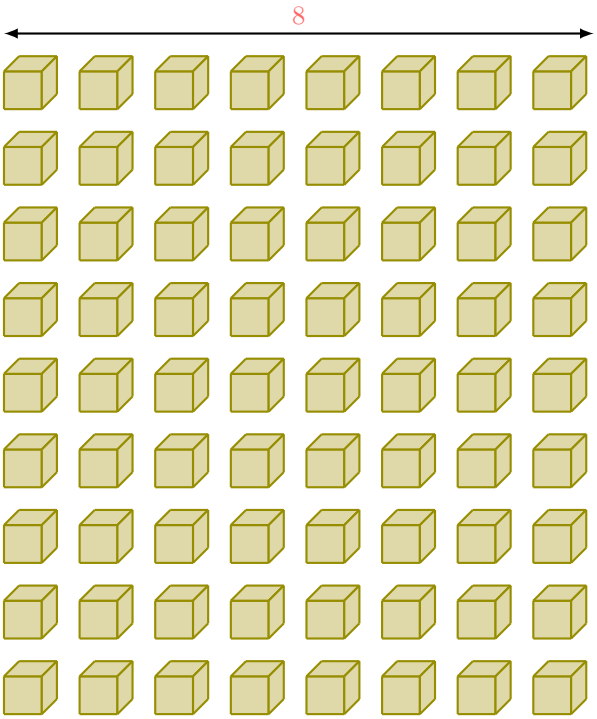


Ex 6:

$$72 \div 8 = \boxed{9}$$

Answer:

- How many times does 8 fit into 72?
- $8 \times 0 = 0$
  $8 \times 1 = 8$
  $8 \times 2 = 16$
  $8 \times 3 = 24$
  $8 \times 4 = 32$
  $8 \times 5 = 40$
  $8 \times 6 = 48$
  $8 \times 7 = 56$
  $8 \times 8 = 64$
  $8 \times 9 = 72$
  $8 \times 10 = 80$
- As $8 \times 9 = 72$, $72 \div 8 = 9$



A.2 CALCULATING DIVISIONS

Ex 7:

$$22 \div 11 = \boxed{2}$$

Answer:

- How many times does 11 fit into 22?
- Write the multiplication table of 11 up to 22:

$$11 \times 1 = 11$$
$$11 \times 2 = 22$$

- As $11 \times 2 = 22$, $22 \div 11 = 2$

Ex 8:

$$60 \div 20 = \boxed{3}$$

Answer:

- How many times does 20 fit into 60?
- Write the multiplication table of 20 up to 60:

$$20 \times 1 = 20$$
$$20 \times 2 = 40$$
$$20 \times 3 = 60$$

- As $20 \times 3 = 60$, $60 \div 20 = 3$

Ex 9:

$$200 \div 100 = \boxed{2}$$

Answer:

- How many times does 100 fit into 200?
- Write the multiplication table of 100 up to 200:

$$100 \times 1 = 100$$
$$100 \times 2 = 200$$

- As $100 \times 2 = 200$, $200 \div 100 = 2$

Ex 10:

$$70 \div 35 = \boxed{2}$$

Answer:

- How many times does 35 fit into 70?
- Write the multiplication table of 35 up to 70:

$$35 \times 1 = 35$$
$$35 \times 2 = 70$$

- As $35 \times 2 = 70$, $70 \div 35 = 2$

Ex 11:

$$48 \div 12 = \boxed{4}$$

Answer:

- How many times does 12 fit into 48?
- Write the multiplication table of 12 up to 48:

$$12 \times 1 = 12$$
$$12 \times 2 = 24$$
$$12 \times 3 = 36$$
$$12 \times 4 = 48$$

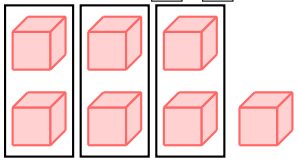
- As $12 \times 4 = 48$, $48 \div 12 = 4$

B DIVISION WITH REMAINDERS

B.1 DIVIDING CUBES WITH REMAINDERS

Ex 12: Divide the cubes into groups:

$$7 \div 3 = \boxed{2}\text{R}\boxed{1}$$

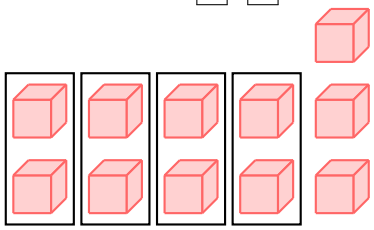


Answer:

- When you divide 7 cubes into 3 groups, there are 2 cubes in each group and 1 cube left over.
- So, $7 \div 3 = 2\text{R}1$

Ex 13: Divide the cubes into groups:

$11 \div 4 = \boxed{2}\text{R}\boxed{3}$

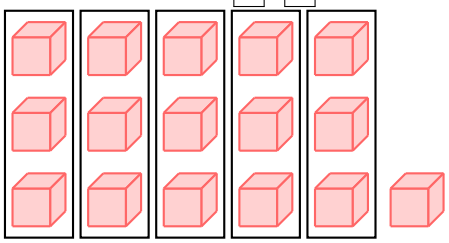


Answer:

- When you divide 11 cubes into 4 groups, there are 2 cubes in each group and 3 cubes left over.
- So, $11 \div 4 = 2\text{R}3$

Ex 14: Divide the cubes into groups:

$16 \div 5 = \boxed{3}\text{R}\boxed{1}$

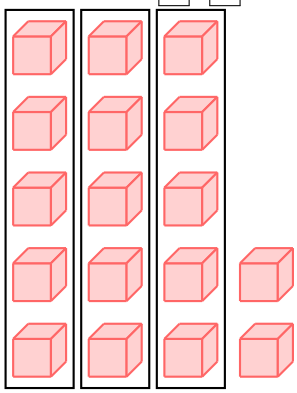


Answer:

- When you divide 16 cubes into 5 groups, there are 3 cubes in each group and 1 cube left over.
- So, $16 \div 5 = 3\text{R}1$

Ex 15: Divide the cubes into groups:

$17 \div 3 = \boxed{5}\text{R}\boxed{2}$

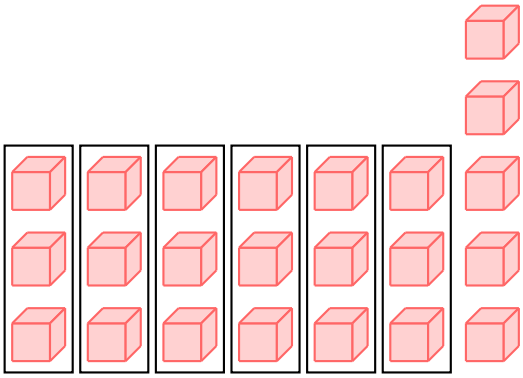


Answer:

- When you divide 17 cubes into 3 groups, there are 5 cubes in each group and 2 cubes left over.
- So, $17 \div 3 = 5\text{R}2$

Ex 16: Divide the cubes into groups:

$23 \div 6 = \boxed{3}\text{R}\boxed{5}$



Answer:

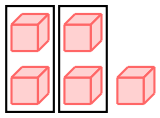
- When you divide 23 cubes into 6 groups, there are 3 cubes in each group and 5 cubes left over.
- So, $23 \div 6 = 3\text{R}5$

B.2 DIVIDING NUMBERS WITH REMAINDERS

Ex 17: Divide the number:

$5 \div 2 = \boxed{2}\text{R}\boxed{1}$

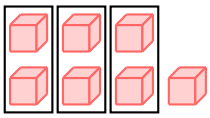
Answer:

- 
- When you divide 5 into 2 groups, there are 2 in each group and 1 left over.
- So, $5 \div 2 = 2\text{R}1$.

Ex 18: Divide the number:

$7 \div 3 = \boxed{2}\text{R}\boxed{1}$

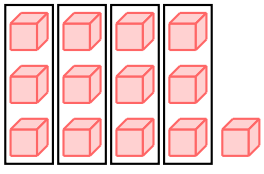
Answer:

- 
- When you divide 7 into 3 groups, there are 2 in each group and 1 left over.
- So, $7 \div 3 = 2\text{R}1$.

Ex 19: Divide the number:

$13 \div 4 = \boxed{3}\text{R}\boxed{1}$

Answer:

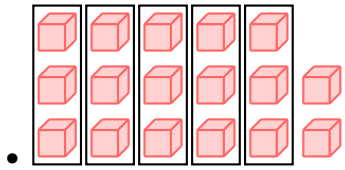
- 
- When you divide 13 into 4 groups, there are 3 in each group and 1 left over.

- So, $13 \div 4 = 3\text{R}1$.

Ex 20: Divide the number:

$$17 \div 5 = \boxed{3}\text{R}\boxed{2}$$

Answer:

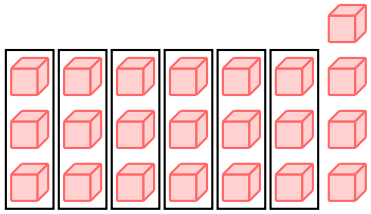
- 

- When you divide 17 into 5 groups, there are 3 in each group and 2 left over.
- So, $17 \div 5 = 3\text{R}2$.

Ex 21: Divide the number:

$$22 \div 6 = \boxed{3}\text{R}\boxed{4}$$

Answer:

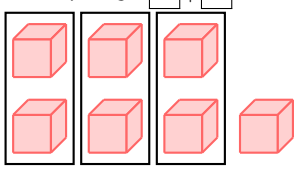
- 

- When you divide 22 into 6 groups, there are 3 in each group and 4 left over.
- So, $22 \div 6 = 3\text{R}4$.

B.3 FINDING MULTIPLICATION WITH REMAINDERS USING CUBES

Ex 22: Write the multiplication and remainder equation for the cubes:

$$7 = 3\times\boxed{2}+\boxed{1}$$

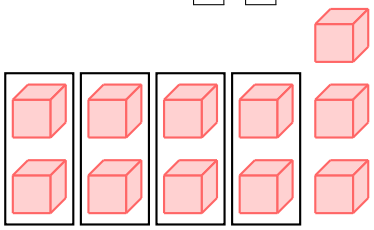


Answer:

- When you divide 7 cubes into 3 groups, there are 2 cubes in each group and 1 cube left over.
- $7 = 3 \times 2 + 1$
- $7 \div 3 = 2\text{R}1$

Ex 23: Write the multiplication and remainder equation for the cubes:

$$11 = 4\times\boxed{2}+\boxed{3}$$

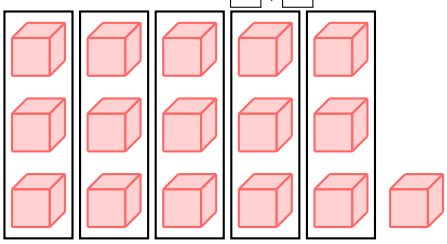


Answer:

- When you divide 11 cubes into 4 groups, there are 2 cubes in each group and 3 cubes left over.
- $11 = 4 \times 2 + 3$
- $11 \div 4 = 2\text{R}3$

Ex 24: Write the multiplication and remainder equation for the cubes:

$$16 = 5\times\boxed{3}+\boxed{1}$$

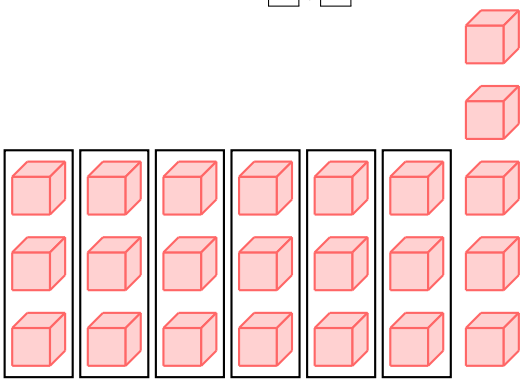


Answer:

- When you divide 16 cubes into 5 groups, there are 3 cubes in each group and 1 cube left over.
- $16 = 5 \times 3 + 1$
- $16 \div 5 = 3\text{R}1$

Ex 25: Write the multiplication and remainder equation for the cubes:

$$23 = 6\times\boxed{3}+\boxed{5}$$

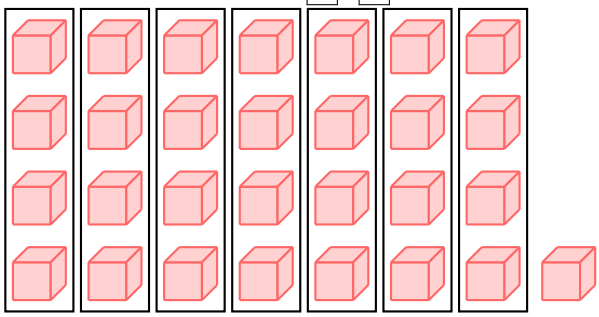


Answer:

- When you divide 23 cubes into 6 groups, there are 3 cubes in each group and 5 cubes left over.
- $23 = 6 \times 3 + 5$
- $23 \div 6 = 3\text{R}5$

Ex 26: Write the multiplication and remainder equation for the cubes:

$29 = 7 \times \boxed{4} + \boxed{1}$



Answer:

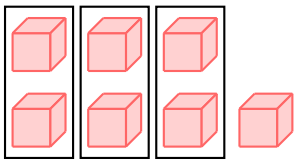
- When you divide 29 cubes into 7 groups, there are 4 cubes in each group and 1 cube left over.
- $29 = 7 \times 4 + 1$
- $29 \div 7 = 4\text{R}1$

B.4 FINDING MULTIPLICATION WITH REMAINDERS

Ex 27: Write the multiplication and remainder equation:

$7 = 3 \times \boxed{2} + \boxed{1}$

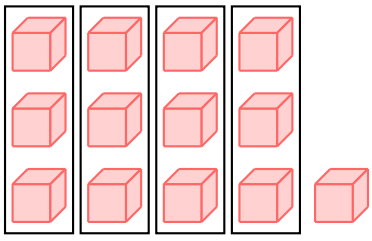
Answer:

- 
- When you divide 7 cubes into 3 groups, there are 2 cubes in each group and 1 cube left over.
- $7 = 3 \times 2 + 1$
- $7 \div 3 = 2\text{R}1$

Ex 28: Write the multiplication and remainder equation:

$13 = 4 \times \boxed{3} + \boxed{1}$

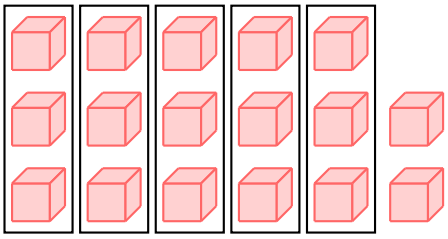
Answer:

- 
- When you divide 13 cubes into 4 groups, there are 3 cubes in each group and 1 cube left over.
- $13 = 4 \times 3 + 1$
- $13 \div 4 = 3\text{R}1$

Ex 29: Write the multiplication and remainder equation:

$17 = 5 \times \boxed{3} + \boxed{2}$

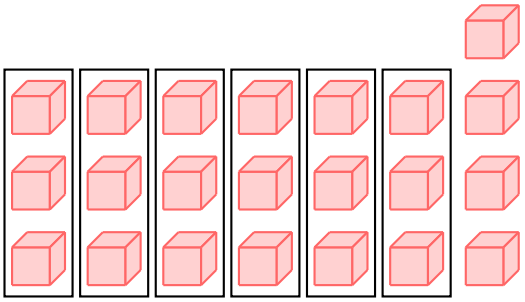
Answer:

- 
- When you divide 17 cubes into 5 groups, there are 3 cubes in each group and 2 cubes left over.
- $17 = 5 \times 3 + 2$
- $17 \div 5 = 3\text{R}2$

Ex 30: Write the multiplication and remainder equation:

$22 = 6 \times \boxed{3} + \boxed{4}$

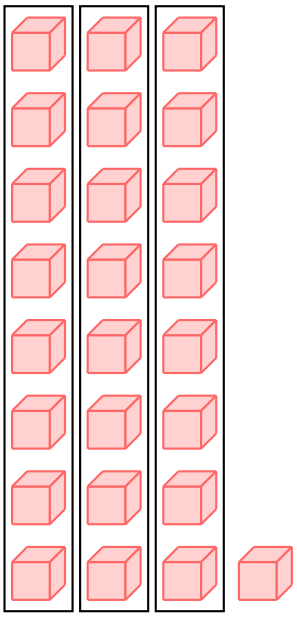
Answer:

- 
- When you divide 22 cubes into 6 groups, there are 3 cubes in each group and 4 cubes left over.
- $22 = 6 \times 3 + 4$
- $22 \div 6 = 3\text{R}4$

Ex 31: Write the multiplication and remainder equation:

$25 = 3 \times \boxed{8} + \boxed{1}$

Answer:

- 
- When you divide 25 cubes into 3 groups, there are 8 cubes in each group and 1 cube left over.
- $25 = 3 \times 8 + 1$
- $25 \div 3 = 8\text{R}1$

C LONG DIVISION

C.1 CALCULATING ONE-STEP LONG DIVISION

Ex 32: On your paper, solve the long division:

$$4\overline{)13}$$

$$13 \div 4 = \boxed{3}\text{R}\boxed{1}$$

Answer:

$$\begin{array}{r} 3 \\ 4\overline{)\ 13} \end{array}$$

- Set up the division.

$$\begin{array}{r} 3 \\ 4\overline{)\ 13} \\ -12 \end{array}$$

- How many times does 4 fit into 13?

$4 \times 3 = \boxed{12}$ is less than or equal to 13
$4 \times 4 = \cancel{16}$ is greater than 13

$$\begin{array}{r} 3 \\ 4\overline{)\ 13} \\ -12 \\ \hline 1 \end{array}$$

- Subtract: $13 - 12 = 1$

So, $13 \div 4 = 3\text{R}1$

Ex 33: On your paper, solve the long division:

$$3\overline{)19}$$

$$19 \div 3 = \boxed{6}\text{R}\boxed{1}$$

Answer:

$$3\overline{)\ 19}$$

- Set up the division.

$$\begin{array}{r} 6 \\ 3\overline{)\ 19} \\ -18 \end{array}$$

- How many times does 3 fit into 19?

$3 \times 6 = \boxed{18}$ is less than or equal to 19
$3 \times 7 = \cancel{21}$ is greater than 19

$$\begin{array}{r} 6 \\ 3\overline{)\ 19} \\ -18 \\ \hline 1 \end{array}$$

- Subtract: $19 - 18 = 1$

So, $19 \div 3 = 6\text{R}1$

Ex 34: On your paper, solve the long division:

$$5\overline{)24}$$

$$24 \div 5 = \boxed{4}\text{R}\boxed{4}$$

Answer:

$$5\overline{)\ 24}$$

- Set up the division.

$$\begin{array}{r} 4 \\ 5\overline{)\ 24} \\ -20 \end{array}$$

- How many times does 5 fit into 24?

$5 \times 4 = \boxed{20}$ is less than or equal to 24
$5 \times 5 = \cancel{25}$ is greater than 24

$$\begin{array}{r} 4 \\ 5\overline{)\ 24} \\ -20 \\ \hline 4 \end{array}$$

- Subtract: $24 - 20 = 4$

So, $24 \div 5 = 4\text{R}4$

Ex 35: On your paper, solve the long division:

$$6\overline{)59}$$

$$59 \div 6 = \boxed{9}\text{R}\boxed{5}$$

Answer:

$$6\overline{)\ 59}$$

- Set up the division.

$$\begin{array}{r} 9 \\ 6\overline{)\ 59} \\ -54 \end{array}$$

How many times does 6 fit into 59?

$6 \times 9 = \boxed{54}$ is less than or equal to 59
$6 \times 10 = \cancel{60}$ is greater than 59

$$\begin{array}{r} 9 \\ 6\overline{)\,59} \\ \underline{-54} \\ 5 \end{array}$$

- Subtract: $59 - 54 = 5$

So, $59 \div 6 = 9\text{R}5$

Ex 36: On your paper, solve the long division:

$$7\overline{)52}$$

$52 \div 7 = \boxed{7}\text{R}\boxed{3}$

Answer:

- $7\overline{)\,52}$

Set up the division.

$$\begin{array}{r} 7 \\ 7\overline{)\,52} \\ -49 \end{array}$$

- How many times does 7 fit into 52?

$7 \times 7 = \boxed{49}$ is less than or equal to 52
$7 \times 8 = \cancel{56}$ is greater than 52

$$\begin{array}{r} 7 \\ 7\overline{)\,52} \\ \underline{-49} \\ 3 \end{array}$$

- Subtract: $52 - 49 = 3$

So, $52 \div 7 = 7\text{R}3$

C.2 CALCULATING TWO-STEPS LONG DIVISION

Ex 37: On your paper, solve the long division:

$$3\overline{)44}$$

$44 \div 3 = \boxed{14}\text{R}\boxed{2}$

Answer:

- $3\overline{)44}$

Set up the division.

$$\begin{array}{r} 1 \\ 3\overline{)44} \\ -3 \end{array}$$

- How many times does 3 fit into 4?

$3 \times 1 = \boxed{3}$ is less than or equal to 4
$3 \times 2 = \cancel{6}$ is greater than 4

$$\begin{array}{r} 1 \\ 3\overline{)44} \\ \underline{-3}\downarrow \\ 14 \end{array}$$

- Subtract: $4 - 3 = 1$ and bring down the next digit 4.

$$\begin{array}{r} 14 \\ 3\overline{)44} \\ \underline{-3}\downarrow \\ 14 \\ -12 \end{array}$$

- How many times does 3 fit into 14?

$3 \times 4 = \boxed{12}$ is less than or equal to 14
$3 \times 5 = \cancel{15}$ is greater than 14

$$\begin{array}{r} 14 \\ 3\overline{)44} \\ \underline{-3}\downarrow \\ 14 \\ \underline{-12} \\ 2 \end{array}$$

- Subtract: $14 - 12 = 2$

So, $44 \div 3 = 14\text{R}2$

Ex 38: On your paper, solve the long division:

$$3\overline{)269}$$

$269 \div 3 = \boxed{89}\text{R}\boxed{2}$

Answer:

- $3\overline{)269}$

Set up the division.

$$\begin{array}{r} 8 \\ 3\overline{)269} \\ -24 \end{array}$$

- How many times does 3 fit into 26?

  $3 \times 8 = \boxed{24}$ is less than or equal to 26
  $3 \times 9 = \cancel{27}$ is greater than 26

$$\begin{array}{r} 8 \\ 3\overline{)269} \\ -\underline{24}\downarrow \\ 29 \end{array}$$

- Subtract: $26 - 24 = 2$ and bring down the next digit 9.

$$\begin{array}{r} 89 \\ 3\overline{)269} \\ -\underline{24}\downarrow \\ 29 \\ -27 \end{array}$$

- How many times does 3 fit into 29?

  $3 \times 9 = \boxed{27}$ is less than or equal to 29
  $3 \times 10 = \cancel{30}$ is greater than 29

$$\begin{array}{r} 89 \\ 3\overline{)269} \\ -\underline{24}\downarrow \\ 29 \\ -\underline{27} \\ 2 \end{array}$$

- Subtract: $29 - 27 = 2$
  So, $269 \div 3 = 89\text{R}2$

Ex 39: On your paper, solve the long division:

$$5\overline{)423}$$

$$423 \div 5 = \boxed{84}\text{R}\boxed{3}$$

Answer:

$$5\overline{)\ 423}$$

- Set up the division.

$$\begin{array}{r} 8 \\ 5\overline{)\ 423} \\ -40 \end{array}$$

- How many times does 5 fit into 42?

  $5 \times 8 = \boxed{40}$ is less than or equal to 42
  $5 \times 9 = \cancel{45}$ is greater than 42

$$\begin{array}{r} 8 \\ 5\overline{)\ 423} \\ -\underline{40}\downarrow \\ 23 \end{array}$$

- Subtract: $42 - 40 = 2$ and bring down the next digit 3.

$$\begin{array}{r} 84 \\ 5\overline{)\ 423} \\ -\underline{40}\downarrow \\ 23 \\ -20 \end{array}$$

- How many times does 5 fit into 23?

  $5 \times 4 = \boxed{20}$ is less than or equal to 23
  $5 \times 5 = \cancel{25}$ is greater than 23

$$\begin{array}{r} 84 \\ 5\overline{)\ 423} \\ -\underline{40}\downarrow \\ 23 \\ -\underline{20} \\ 3 \end{array}$$

- Subtract: $23 - 20 = 3$
  So, $423 \div 5 = 84\text{R}3$

Ex 40: On your paper, solve the long division:

$$4\overline{)130}$$

$$130 \div 4 = \boxed{32}\text{R}\boxed{2}$$

Answer:

$$4\overline{)\ 130}$$

- Set up the division.

$$\begin{array}{r} 3 \\ 4\overline{)\ 130} \\ -12 \end{array}$$

- How many times does 4 fit into 13?

  $4 \times 3 = \boxed{12}$ is less than or equal to 13
  $4 \times 4 = \cancel{16}$ is greater than 13

$$\begin{array}{r} 3 \\ 4\overline{)\,130} \\ -12\downarrow \\ 10 \end{array}$$

- Subtract: $13 - 12 = 1$ and bring down the next digit 0.

$$\begin{array}{r} 32 \\ 4\overline{)\,130} \\ -12\downarrow \\ 10 \\ -8 \end{array}$$

- How many times does 4 fit into 10?

$4 \times 2 = \boxed{8}$ is less than or equal to 10
$4 \times 3 = \cancel{12}$ is greater than 10

$$\begin{array}{r} 32 \\ 4\overline{)\,130} \\ -12\downarrow \\ 10 \\ -8 \\ 2 \end{array}$$

- Subtract: $10 - 8 = 2$ So, $130 \div 4 = 32\text{R}2$

Ex 41: On your paper, solve the long division:

$$7\overline{)\,252}$$

$252 \div 7 = \boxed{36}\text{R}\boxed{0}$

Answer:

- $7\overline{)\,252}$

Set up the division.

$$\begin{array}{r} 3 \\ 7\overline{)\,252} \\ -21 \end{array}$$

- How many times does 7 fit into 25?

$7 \times 3 = \boxed{21}$ is less than or equal to 25
$7 \times 4 = \cancel{28}$ is greater than 25

$$\begin{array}{r} 3 \\ 7\overline{)\,252} \\ -21\downarrow \\ 42 \end{array}$$

- Subtract: $25 - 21 = 4$ and bring down the next digit 2.

$$\begin{array}{r} 36 \\ 7\overline{)\,252} \\ -21\downarrow \\ 42 \\ -42 \end{array}$$

- How many times does 7 fit into 42?

$7 \times 6 = \boxed{42}$ is less than or equal to 42
$7 \times 7 = \cancel{49}$ is greater than 42

$$\begin{array}{r} 36 \\ 7\overline{)\,252} \\ -21\downarrow \\ 42 \\ -42 \\ 0 \end{array}$$

- Subtract: $42 - 42 = 0$
So, $252 \div 7 = 36\text{R}0$

C.3 CALCULATING THREE-STEPS LONG DIVISION

Ex 42: On your paper, solve the long division:

$$4\overline{)\,730}$$

$730 \div 4 = \boxed{182}\text{R}\boxed{2}$

Answer:

$4\overline{)\,730}$

-

$$\begin{array}{r} 1 \\ 4\overline{)\,730} \\ 4 \\ \hline 3 \end{array}$$

- How many times does 4 fit into 7? $4 \times 1 = \boxed{4} \leqslant 7$
$4 \times 2 = \cancel{8} > 7$

$$\begin{array}{r} 18 \\ 4\overline{)\,730} \\ 4 \\ \hline 33 \\ 32 \\ \hline 1 \end{array}$$

- How many times does 4 fit into 33? $4 \times 8 = \boxed{32} \leqslant 33$
$4 \times 9 = \cancel{36} > 33$

$$\begin{array}{r} 182 \\ 4\overline{)730} \\ \underline{4} \\ 33 \\ \underline{32} \\ 10 \\ \underline{8} \\ 2 \end{array}$$

- How many times does 4 fit into 10? $4 \times 2 = \boxed{8} \leqslant 10$, $4 \times 3 = \cancel{12} > 10$
- So, $730 \div 4 = 182\text{R}2$

Ex 43: On your paper, solve the long division:

$$5\overline{)576}$$

$$576 \div 5 = \boxed{115}\text{R}\boxed{1}$$

Answer:

$$5\overline{)576}$$

- Set up the division.

$$\begin{array}{r} 1 \\ 5\overline{)576} \\ \underline{5} \\ 0 \end{array}$$

- How many times does 5 fit into 5? $5 \times 1 = \boxed{5} \leqslant 5$, $5 \times 2 = \cancel{10} > 5$

$$\begin{array}{r} 11 \\ 5\overline{)576} \\ \underline{5} \\ 07 \\ \underline{5} \\ 2 \end{array}$$

- How many times does 5 fit into 7? $5 \times 1 = \boxed{5} \leqslant 7$, $5 \times 2 = \cancel{10} > 7$

$$\begin{array}{r} 115 \\ 5\overline{)576} \\ \underline{5} \\ 07 \\ \underline{5} \\ 26 \\ \underline{25} \\ 1 \end{array}$$

- How many times does 5 fit into 26? $5 \times 5 = \boxed{25} \leqslant 26$, $5 \times 6 = \cancel{30} > 26$
- So, $576 \div 5 = 115\text{R}1$

Ex 44: On your paper, solve the long division:

$$6\overline{)1456}$$

$$1456 \div 6 = \boxed{242}\text{R}\boxed{4}$$

Answer:

$$6\overline{)1456}$$

- Set up the division.

$$\begin{array}{r} 2 \\ 6\overline{)1456} \\ \underline{12} \\ 2 \end{array}$$

- How many times does 6 fit into 14? $6 \times 2 = \boxed{12} \leqslant 14$, $6 \times 3 = \cancel{18} > 14$

$$\begin{array}{r} 24 \\ 6\overline{)1456} \\ \underline{12} \\ 25 \\ \underline{24} \\ 1 \end{array}$$

- How many times does 6 fit into 25? $6 \times 4 = \boxed{24} \leqslant 25$, $6 \times 5 = \cancel{30} > 25$

$$\begin{array}{r} 242 \\ 6\overline{)1456} \\ \underline{12} \\ 25 \\ \underline{24} \\ 16 \\ \underline{12} \\ 4 \end{array}$$

- How many times does 6 fit into 16? $6 \times 2 = \boxed{12} \leqslant 16$, $6 \times 3 = \cancel{18} > 16$
- So, $1456 \div 6 = 242\text{R}4$

Ex 45: On your paper, solve the long division:

$$9\overline{)1968}$$

$$1968 \div 9 = \boxed{218}\text{R}\boxed{6}$$

Answer:

$$9\overline{)1968}$$

- Set up the division.

$$\begin{array}{r} 2 \\ 9\overline{)1968} \\ \underline{18} \\ 1 \end{array}$$

- How many times does 9 fit into 19? $9 \times 2 = \boxed{18} \leqslant 19$, $9 \times 3 = \cancel{27} > 19$

$$\begin{array}{r} 21 \\ 9\overline{)1968} \\ \underline{18} \\ 16 \\ \underline{9} \\ 7 \end{array}$$

- How many times does 9 fit into 16? $9 \times 1 = \boxed{9} \leqslant 16$, $9 \times 2 = \cancel{18} > 16$

$$\begin{array}{r} 218 \\ 9\overline{)1968} \\ \underline{18} \\ 16 \\ \underline{9} \\ 78 \\ \underline{72} \\ 6 \end{array}$$

- How many times does 9 fit into 78? $9 \times 8 = \boxed{72} \leqslant 78$, $9 \times 9 = \cancel{81} > 78$

So, $1968 \div 9 = 218\text{R}6$

D TWO WAYS TO THINK ABOUT DIVISION

D.1 FINDING NUMBER IN EACH GROUP AND REMAINDER

Ex 46: 5 friends want to share 22 apples equally.
How many apples will each friend get?

$\boxed{4}$ apples

How many apples will be left over?

$\boxed{2}$ apples

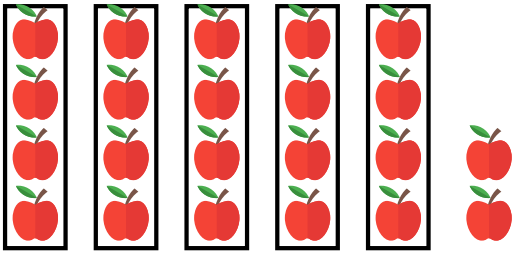
Answer:

- We can divide the apples like this:

$$\begin{array}{r} 4 \\ 5\overline{)\ 22} \\ \text{-}\underline{20} \\ 2 \end{array}$$

So, $22 \div 5 = 4\text{R}2$.

- This means we can put 22 apples into 5 equal groups.



- Each friend will get 4 apples.
- There will be 2 apples left over.

Ex 47: 4 children want to share 18 marbles equally.
How many marbles will each child get?

$\boxed{4}$ marbles

How many marbles will be left over?

$\boxed{2}$ marbles

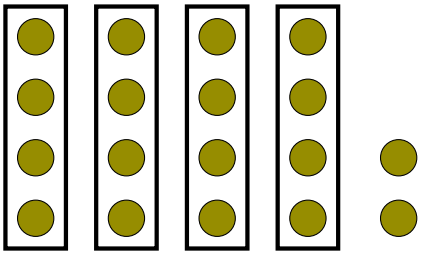
Answer:

- We can divide the marbles like this:

$$\begin{array}{r} 4 \\ 4\overline{)\ 18} \\ \text{-}\underline{16} \\ 2 \end{array}$$

So, $18 \div 4 = 4\text{R}2$

- This means we can put 18 marbles into 4 equal groups.



- Each child will get 4 marbles.
- There will be 2 marbles left over.

Ex 48: 3 friends want to share 37 cherries equally.
How many cherries will each friend get?

$\boxed{12}$ cherries

How many cherries will be left over?

$\boxed{1}$ cherry

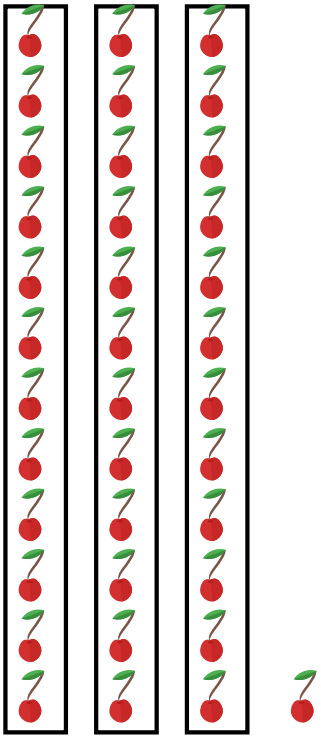
Answer:

- We can divide the cherries like this:

$$\begin{array}{r} 12 \\ 3\overline{)37} \\ \underline{3} \\ 07 \\ \underline{6} \\ 1 \end{array}$$

So, $37 \div 3 = 12\text{R}1$

- This means we can put 37 cherries into 3 equal groups.



- Each friend will get 12 cherries.
- There will be 1 cherry left over.

D.2 FINDING NUMBER OF GROUPS AND REMAINDER

Ex 49: A farmer is packing 34 eggs into boxes. Each box holds 6 eggs.
How many boxes does the farmer need?

$\boxed{5}$ boxes

How many eggs will be left over?

$\boxed{4}$ eggs

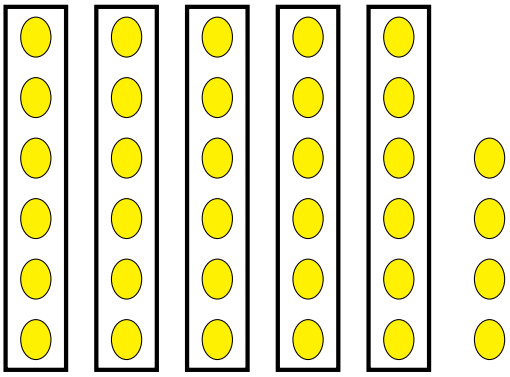
Answer:

- We can divide the eggs like this:

$$\begin{array}{r} 5 \\ 6\overline{)34} \\ \underline{-30} \\ 4 \end{array}$$

So, $34 \div 6 = 5\text{R}4$

- This means we can pack 34 eggs into boxes that hold 6 eggs each.



- The farmer needs 5 boxes.
- There will be 4 eggs left over.

Ex 50: A gardener is arranging 65 flowers into vases. Each vase holds 7 flowers.
How many full vases does the gardener have?

$\boxed{9}$ vases

How many flowers will be left over?

$\boxed{2}$ flowers

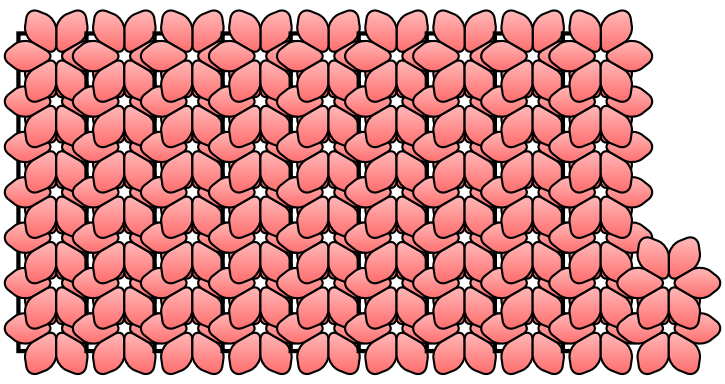
Answer:

- We can divide the flowers like this:

$$\begin{array}{r} 9 \\ 7\overline{)65} \\ \underline{-63} \\ 2 \end{array}$$

So, $65 \div 7 = 9\text{R}2$.

- This means we can put 65 flowers into vases that hold 7 flowers each.



- The gardener has 9 full vases.
- There will be 2 flowers left over.

Ex 51: A baker packs 42 cookies into boxes. Each box holds 3 cookies.
How many full boxes does the baker have?

$\boxed{14}$ boxes

How many cookies will be left over?

$\boxed{0}$ cookies

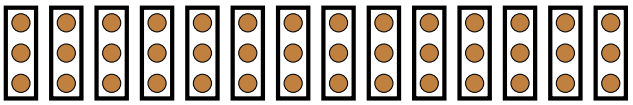
Answer:

- We can divide the cookies like this:

$$\begin{array}{r} 14 \\ 3\overline{)42} \\ \underline{3} \\ 12 \\ \underline{12} \\ 0 \end{array}$$

  So, $42 \div 3 = 14\text{R}0$.

- This means we can pack 42 cookies into boxes that hold 3 cookies each.



- The baker has 14 full boxes.
- There will be 0 cookies left over.