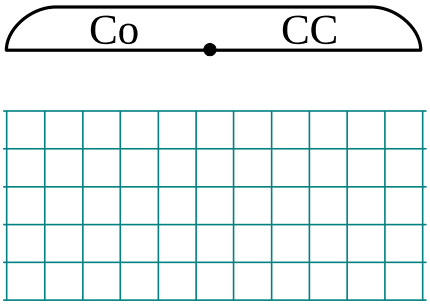
Lesson № 21

1 Solve the word problems

A. Hannah bought desserts at the bakery. She bought ***a*** cupcakes that cost $2 each and ***d*** cookies that cost ***b*** dollars each. If she ate ***w*** cookies, how much money did she spend?



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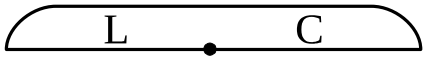
B. Henry earns ***e*** dollars for mowing a lawn and four times as much for washing a car. How much money would Henry make if he mowed 6 lawns and washed 3 cars?



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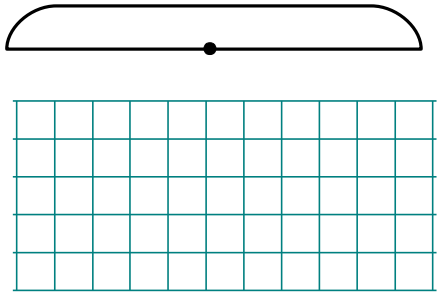
C. There are several books on a shelf. ***H*** books have 239 pages each and ***K*** books have 537 pages each. How many pages do these books have in total?



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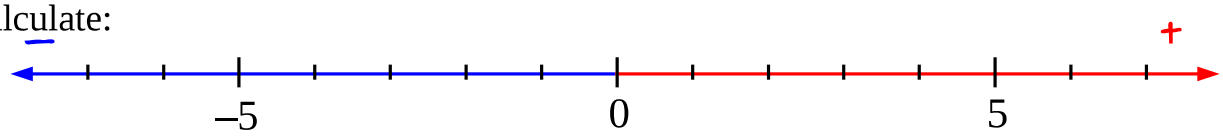
2 Calculate:



6 + 4 = 6 + (–4) = 6 – 4 = 6 – (–4) =

(–1) + 3 = (–1) + (–3) = (–1) – 3 = (–1) – (–3) =

3 Do the arithmetics with "magic numbers" that are plotted on the "magic number line"

Δ Θ Λ Σ Ω ∏

Λ + 1 = Λ + (–1) = Σ + (–2) =

∏ + ___ = Θ Ω – Λ = Λ – Ω =

4 Study the numbers in set **Q** = { 36, 142, 281, 29, 4589, 220}. Finish the statements making them correct.

All these numbers _____

Some of these numbers are not _____

At least one of these numbers _____

None of these numbers _____

Egyptian Numbers:

Ancient Egyptians wrote numbers using symbols, or hieroglyphics. The symbols for numbers are shown in the table.

To write a number in ancient Egyptian symbols, you write down the right number of symbols.

Number	Symbol	Description
1	𓏺	Vertical stroke
10	𓎆	Heel bone
100	𓍢	Scroll
1000	𓆼	Lotus flower
10,000	𓂭	Pointing finger
100,000	𓆑	Fish
1,000,000	𓁨	Kneeling person

5 Write in Egyptian:

529 =

63 =

4,402 =

Example: 4023

𓆼𓆼𓆼𓆼
𓎆𓎆
𓏺𓏺𓏺
OR
𓆼𓆼𓆼𓆼 𓎆𓎆 𓏺𓏺𓏺

6 Write in Arabic:

𓆑𓆑𓆑𓍢𓍢𓎆𓎆𓎆 =

𓁨𓁨𓁨𓁨𓁨 =

𓆼𓆼𓆼𓆼𓍢𓍢𓎆𓎆𓎆𓎆𓎆𓏺𓏺𓏺 =

𓁨𓂭𓂭𓂭𓍢𓍢𓍢 =

7 Calculate:

$1 : \frac{1}{2} = 1 \times \square =$ $\quad 1 : \frac{1}{3} = 1 \times \square =$ $\quad 1 : \frac{1}{4} = 1 \times \square =$

$4 : \frac{1}{2} = 4 \times \square =$ $\quad 7 : \frac{1}{3} = 7 \times \square =$ $\quad 9 : \frac{1}{4} = 9 \times \square =$

Dividing a whole number into a fraction $\frac{1}{n}$ is equivalent to multiplying this number by n:

$$p : \frac{1}{n} = p \times n$$

This is true if p is a fraction as well!

8 Calculate:

$\frac{1}{6} : \frac{1}{5} = \frac{1}{6} \times \square =$ $\quad \frac{1}{7} : \frac{1}{2} = \frac{1}{7} \times \square =$ $\quad \frac{1}{9} : \frac{1}{4} = \frac{1}{9} \times \square =$

9 Solve the equations below. Use rectangle diagrams for help.

$x \times \frac{1}{3} = 4$

$x = 4 : \frac{1}{3}$

$x =$ ✔

$x : \frac{1}{5} = 2$

$x =$

$x =$ ✔

$2 : x = \frac{1}{7}$

$x =$ ✔

10 Alice is younger than Lisa.

Julie is older than Lisa.

Bob is older than Julie.

Which of the kids is the youngest? ___

Bob is older than Cole.

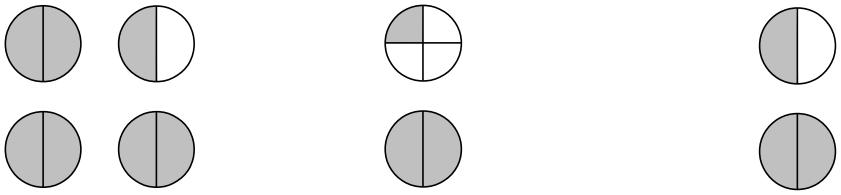
Lisa is younger than Cole.

→

Whose ages cannot be compared? _____

11

Proper, Improper, Mixed Fractions.

Proper fractions	Improper fractions	Mixed fractions
Its factor is smaller than its denominator.	Its factor is larger than its denominator.	A combination of a whole number and a proper fraction.
Examples: $\frac{2}{7}$ $\frac{4}{5}$ $\frac{2}{3}$	Examples: $\frac{7}{2}$ $\frac{5}{4}$ $\frac{3}{2}$	Examples: $3\frac{1}{2}$ $1\frac{1}{4}$ $1\frac{1}{2}$
		

12 Solve the equations. Use the help of rectangle diagrams.

$x \times \frac{1}{5} = \frac{1}{3}$

$x =$

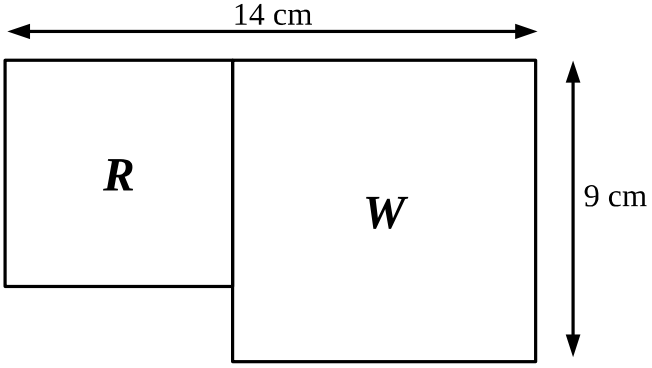
$x =$

$\frac{1}{3} : y = \frac{1}{6}$

$y =$

$y =$

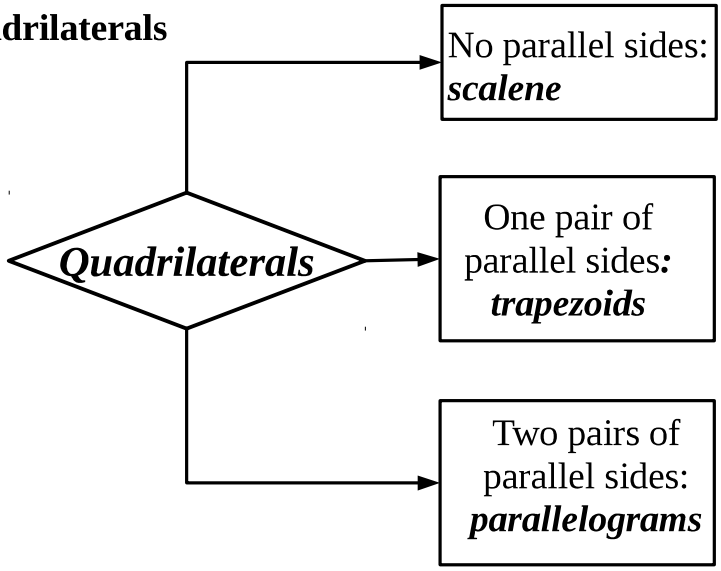
13 The shape is made out of two squares.
Find the area of the smaller square.

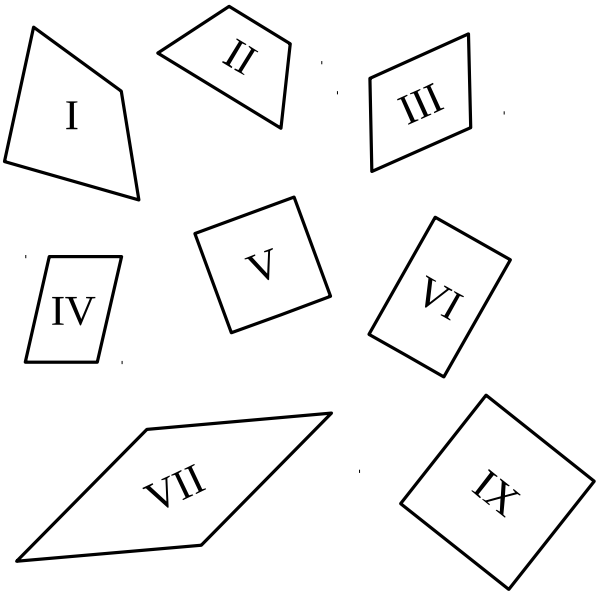


Quadrilaterals

Look at different quadrilaterals. What is the difference between quadrilaterals I and II?

Quadrilaterals are classified by number of pairs of parallel sides.





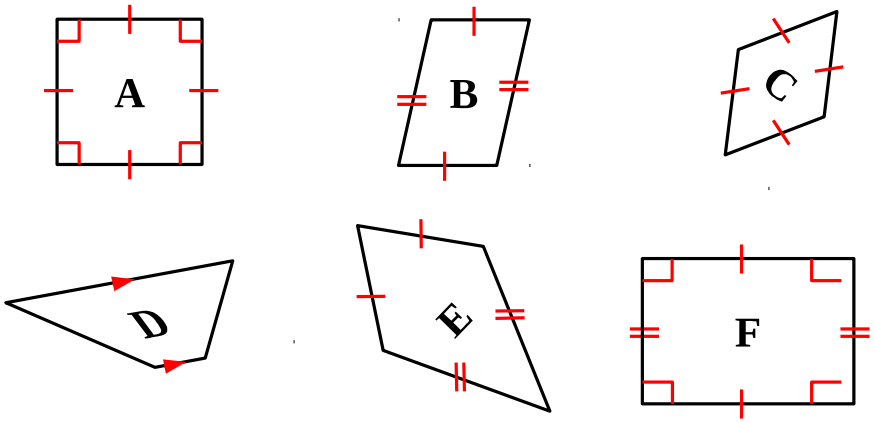
Also:

A parallelogram with all right angles is called a ***rectangle***;

A parallelogram with all equal sides is called a ***rhombus***;

A rectangle with all equal sides is called a ***square***.

14 State all possible names for each figure below



15 Check ✔ the TRUE statements; cross mark ✗ the FALSE statements.

- Any square is a parallelogram.
- Any parallelogram is a square.
- Any rectangle is a parallelogram.
- Any parallelogram is a rectangle.

16 Which quadrilateral is described in each case below? Draw each one.

1. All sides equal; four right angles

_____

2. Opposite sides equal; four right angles

_____

3. Opposite sides parallel; no right angles

_____

4. Exactly two sides parallel

_____

5. Opposite sides equal; no sides perpendicular

_____

6. Opposite sides parallel; adjacent sides perpendicular

_____

7. All sides equal; no sides perpendicular

_____

8. No sides parallel; no sides perpendicular

_____