

Lesson № 5

1 Convert:

$1 \text{ m } 3 \text{ dm } 7 \text{ cm} = \underline{\hspace{2cm}} \text{ cm}$

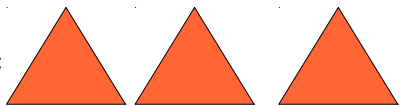
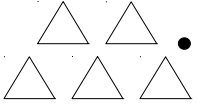
$2 \text{ dm } 4 \text{ cm} = \underline{\hspace{2cm}} \text{ cm}$

$34 \text{ dm} = \underline{\hspace{1cm}} \text{ m } \underline{\hspace{1cm}} \text{ dm}$

$34 \text{ dm} = \underline{\hspace{1cm}} \text{ m } \underline{\hspace{1cm}} \text{ cm}$

$282 \text{ cm} = \underline{\hspace{1cm}} \text{ m } \underline{\hspace{1cm}} \text{ dm } \underline{\hspace{1cm}} \text{ cm}$

$282 \text{ cm} = \underline{\hspace{1cm}} \text{ m } \underline{\hspace{1cm}} \text{ cm}$

3 h 5 t 2 u =   = 3 h 52 u = 35 t 2 u = 352

3 m 5 dm 2 cm = 3 m 52 cm = 35 dm 2 cm = 352 cm

2 Graph the numbers and regroup them:

$2 \text{ h } 4 \text{ t } 5 \text{ u} = \boxed{\hspace{2cm}} = \underline{\hspace{2cm}} = \boxed{\hspace{1cm}} \text{ h } \boxed{\hspace{1cm}} \text{ u} = \boxed{\hspace{1cm}} \text{ t } \boxed{\hspace{1cm}} \text{ u}$

$1 \text{ h } 7 \text{ t } 3 \text{ u} = \boxed{\hspace{2cm}} = \underline{\hspace{2cm}} = \boxed{\hspace{1cm}} \text{ h } \boxed{\hspace{1cm}} \text{ u} = \boxed{\hspace{1cm}} \text{ t } \boxed{\hspace{1cm}} \text{ u}$

$2 \text{ h } 5 \text{ t } 4 \text{ u} = \boxed{\hspace{2cm}} = \underline{\hspace{2cm}} = \boxed{\hspace{1cm}} \text{ h } \boxed{\hspace{1cm}} \text{ u} = \boxed{\hspace{1cm}} \text{ t } \boxed{\hspace{1cm}} \text{ u}$

Which distances correspond to these numbers?

3 Calculate:

$$8 \text{ m } 6 \text{ dm} - 4 \text{ m } 2 \text{ dm} = \underline{\quad} \text{ dm}$$

$$2 \text{ m } 1 \text{ dm} + 6 \text{ m} = \underline{\quad} \text{ m } \underline{\quad} \text{ dm}$$

$$8 \text{ m } 9 \text{ dm} - 3 \text{ m } 5 \text{ dm} = \underline{\quad} \text{ dm}$$

$$7 \text{ m } 5 \text{ dm} - 3 \text{ dm} = \underline{\quad} \text{ m } \underline{\quad} \text{ dm}$$

4 Read the numbers and express in hundreds, tens, and units.

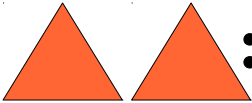

$$589 = \square \text{ h } \square \text{ t } \square \text{ u}$$

$$938 = \square \text{ h } \square \text{ t } \square \text{ u}$$

$$757 = \square \text{ h } \square \text{ t } \square \text{ u}$$


$$624 = \square \text{ h } \square \text{ t } \square \text{ u}$$

Hundreds and tens.

2 h 0 t 4 u =   = 2 h 4 u = 20 t 4 u = 204

2 m 4 cm = 20 dm 4 cm = 204 cm

5 Complete according to the sample:

$$3 \text{ h } 7 \text{ u} = 3 \text{ h } 0 \text{ t } 7 \text{ u} = 307 = \img alt="three triangles" data-bbox="611 686 844 733"/> $$

$$4 \text{ h } 2 \text{ u} = \square \text{ h } \square \text{ t } \square \text{ u} = \underline{\hspace{2cm}}$$

$$1 \text{ h } 5 \text{ u} = \square \text{ h } \square \text{ t } \square \text{ u} = \underline{\hspace{2cm}}$$

Which distances correspond to these numbers?

6 Write the numbers using digits and express the distances in centimeters.

$$9 \text{ h } 4 \text{ u} =$$

$$6 \text{ h } 2 \text{ u} =$$

$$9 \text{ m } 4 \text{ cm} =$$

$$6 \text{ m } 2 \text{ cm} =$$

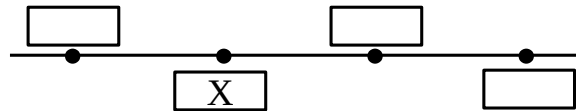
7 Which number in counting ...

... **follows** 482; 500; 529; 699; 810

... **precedes** 217; 360; 400; 590; 900

8 LJ, JM, and FT labeled point X on a number line. Then each of them tried to write 3 consecutive numbers on a separate sheet of paper.

- LJ wrote: $X + 1$, $X + 2$, $X + 4$.
- JM wrote: $X - 1$, X , and $X + 1$.
- FT wrote: $X - 2$, $X - 1$, X .



Which of them was right? Label all 4 points on the line.

9 Which number ...

follows ... $a + 2$ $c - 1$ x $y + 4$

precedes ... $a + 2$ $c - 1$ x $y + 4$

10 Compare:

$$a \quad \square \quad a + c$$

$$a + b \quad \square \quad b + a$$

$$38 - b \quad \square \quad 68 - b$$

$$b \quad \square \quad b - 5$$

$$k + 26 \quad \square \quad 62 + k$$

$$a - 0 \quad \square \quad a + 0$$

$$4 \quad \square \quad d - d$$

$$54 + n \quad \square \quad 54 - n$$

$$c - 19 \quad \square \quad c - 90$$

Parenthesis.

In expression $8 - 1 + 4$ operations are performed in the natural order. The subtraction is performed before addition. In order to **change the natural order** *parentheses* are used:

$$\begin{array}{c} \textcircled{1} \quad \textcircled{2} \\ 8 - 1 + 4 = 11 \end{array}$$

$$\begin{array}{c} \textcircled{2} \quad \textcircled{1} \\ 8 - (1 + 4) = 3 \end{array}$$

11 Determine the order of operations in the expressions:

a). $a - (b + c)$

b). $(a + b) - c$

c). $a - (b - c) - d$

d). $26 + (32 - 16)$

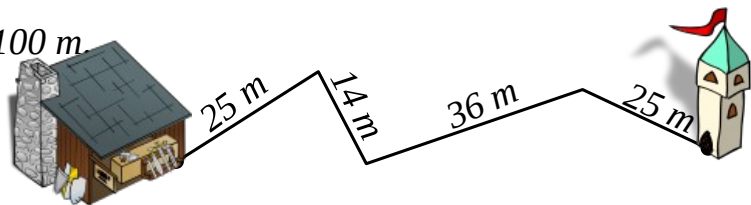
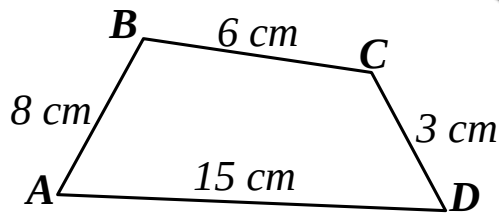
e). $93 + (12 + 16) - 35$

f). $a + (b - c + d)$

Perimeter.

A path from a blacksmith shop to a tower is a segmented chain. Its length is:

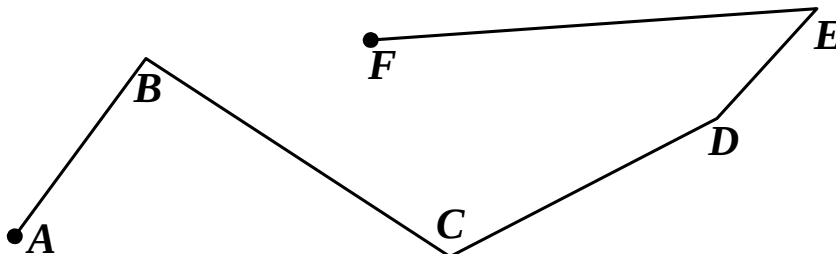
$$25\text{ m} + 14\text{ m} + 36\text{ m} + 25\text{ m} = 100\text{ m}$$



A closed segmented chain forms a polygon. Each segment becomes a side of the polygon. The total of the sides of a polygon is called its **perimeter**.

The perimeter of the quadrilateral **ABCD** equals $8\text{ cm} + 6\text{ cm} + 3\text{ cm} + 15\text{ cm} = 32\text{ cm}$

12 Measure the segments of the segmented line and find its length:



AB	
BC	
CD	
DE	2 cm
EF	

13 Regroup:

2 \$ 5 cents = ____ dimes ____ cents

2m 5 cm = ____ dm ____ cm

317 cents = ____ dimes ____ cents

317 cm = ____ dm ____ cm

450 cents = ____ \$ ____ dimes

450 m = ____ m ____ cm

14 Express the numbers in hundreds and units.
Express the distances in meters and centimeters.

503 = h u = t u

503 cm = m cm = dm cm

109 = h u = t u

109 cm = m cm = dm cm

304 = h u = t u

304 cm = m cm = dm cm

15 Calculate:

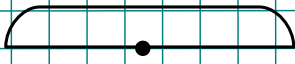
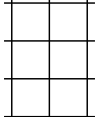
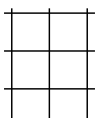



5 m 6 dm + 2 m 4 dm =

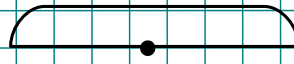
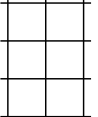
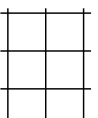



7 m - 3 m 8 dm =

9 m 8 dm - 4 m 7 dm =

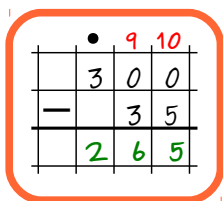
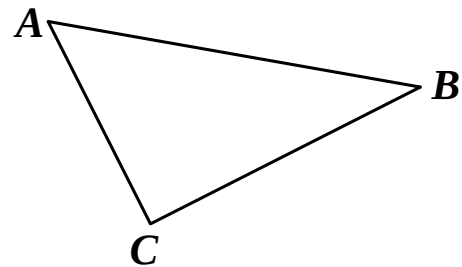
3 m 5 dm + 1 m 9 dm =

16 Solve equations:

	
$x + 37 = 46$	
$x =$	
$x =$	
	
	

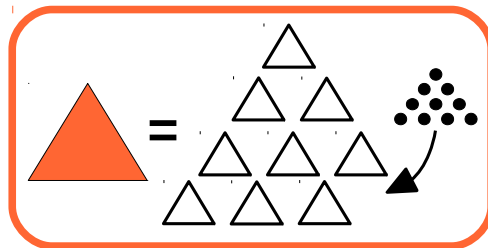
	
$34 - x = 8$	
$x =$	
$x =$	
	
	

17 JM and PY decided to make a triangular vegetable bed like the one on the drawing. The brothers decided to surround it by a fence. Use a ruler to find out how long the fence should be?



Borrowing units from hundreds.

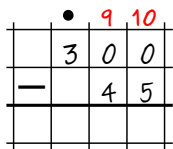
$$100 = 90 + 10 = 9 \text{ t} + 10 \text{ u}$$



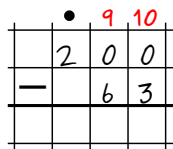
18 Who ate the carrot?



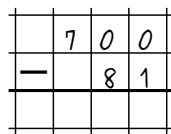
526	137	255	255	619	877



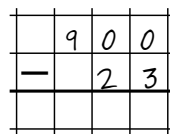
B



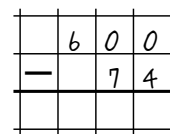
A



I



T



R

Algorithms and Programs.

19 Insert parentheses according to the order of operations:

$$\textcircled{1} \quad \textcircled{2}$$

$$a + b + c$$

$$\textcircled{1} \quad \textcircled{2}$$

$$a - b + c$$

$$\textcircled{1} \quad \textcircled{2}$$

$$a + b - c$$

$$\textcircled{1} \quad \textcircled{2}$$

$$a - b - c$$

$$\textcircled{2} \quad \textcircled{1}$$

$$a + b + c$$

$$\textcircled{2} \quad \textcircled{1}$$

$$a - b + c$$

$$\textcircled{2} \quad \textcircled{1}$$

$$a + b - c$$

$$\textcircled{2} \quad \textcircled{1}$$

$$a - b - c$$

20 Determine the order of operations in the expressions:

$$12 - 4 + 7$$

$$12 - (4 + 7)$$

$$(12 - 4) + 7$$

$$19 - 3 + 7 - 4$$

$$19 - (3 + 7) - 4$$

$$19 - 3 + (7 - 4)$$

Sometimes to achieve a purpose *several operations* must be performed. The sequence of these operations is called an **algorithm**.

21 Record the algorithm for tea brewing by arranging the actions in the correct order:

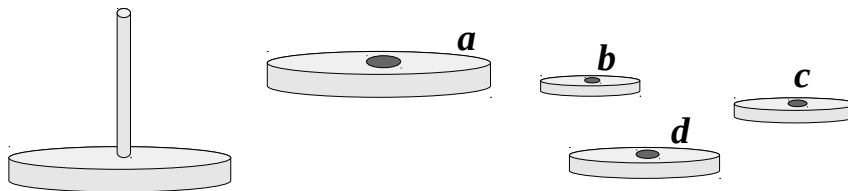
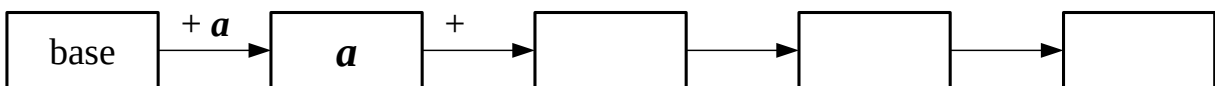
1. Fill the tea pot with the boiling water
2. Boil some water
3. Cover the tea pot with a special warmer
4. Rinse the tea pot with boiling water
5. Put the tea leaves into the tea pot
6. Wait for 5 minutes until the tea brew is ready
7. Prepare some tea leaves



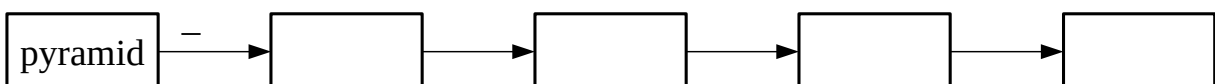
When we dress up we put on shoes **after** putting on the socks. When we undress we take off the shoes **before** we take off the socks.

In reverse algorithms the reverse operations are performed in the reverse order!

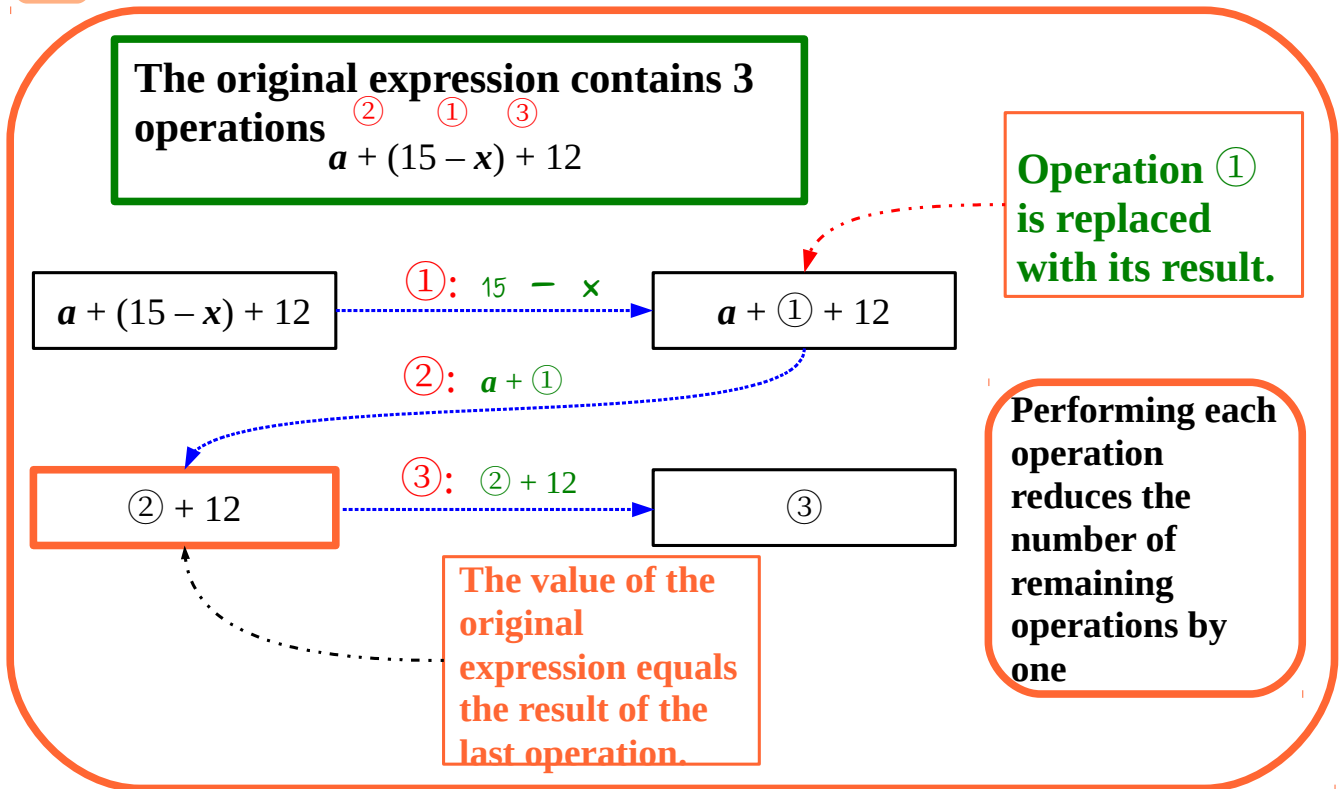
22 Write a program of putting up the pyramid from its parts



Write the program for disassembling this pyramid into pieces.



- 23 Analyze a program to evaluate expression $a + (15 - x) + 12$



- 24 For each expression mark the order of operations and write a program to evaluate it. For each step write the remaining expression by replacing the operation with its result.

$$9 + y - 7 + x$$

$$(9 + y) - (7 + x)$$

1. _____

2. _____

3. _____

- 25 Evaluate the expressions step-by-step:

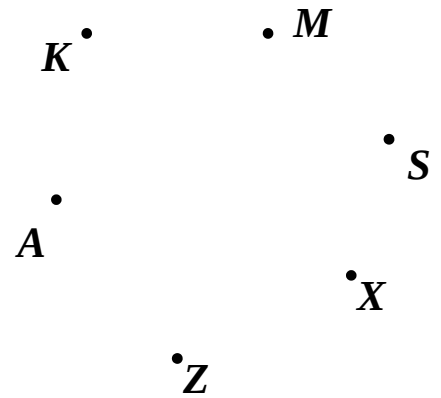
$$12 + 8 - 7 + 13 = \underline{\hspace{10em}}$$

$$(12 + 8) - (7 + 13) = \underline{\hspace{10em}}$$

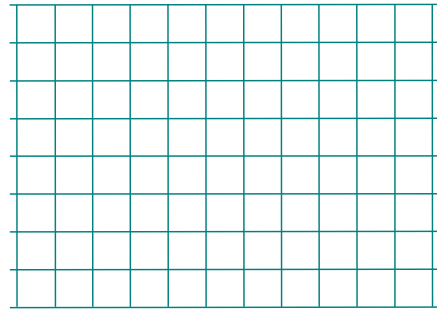
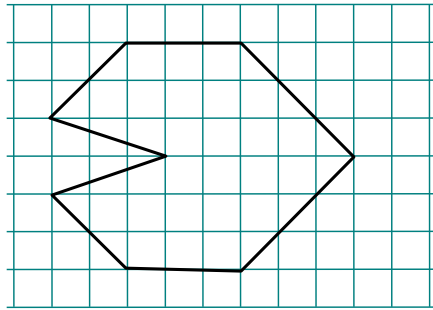
$$12 + (8 - 7 + 13) = \underline{\hspace{10em}}$$

26 Follow the instructions:

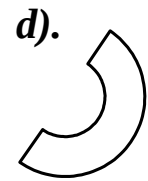
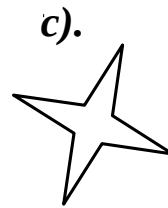
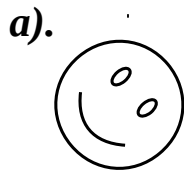
1. Plot straight line KS .
2. Plot straight line ZX .
3. Find their intersection point and label it Q .
4. Plot ray $[AQ)$.
5. Plot line segment $[ZM]$
6. Find intersection point of $[AQ)$ and $[ZM]$, label it W .



27 Make an *identical* drawing.



28 Find lines of symmetry of the shapes below:



29 Reconstruct symmetric shapes using their lines of symmetry

