Egyptian Section

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IN

Mathematics

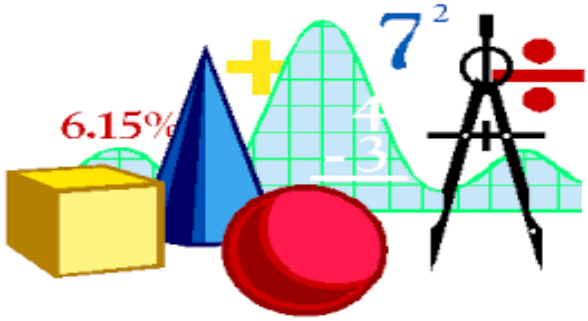
Geometry

Name: ..... **Class: G8**

Second Term

Prepared by:

Math Department

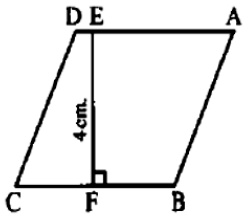


Lesson 1

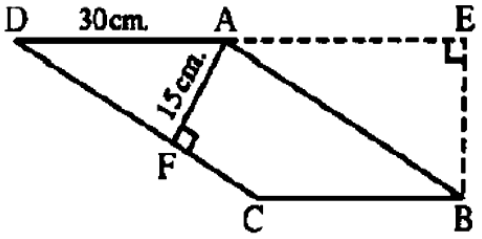
The equality of areas of parallelogram

Complete each of the following :

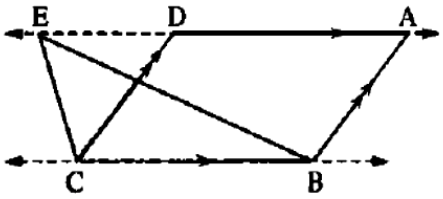
١. If the area of ▱ ABCD = 400 cm^2 ,
then BC = ... cm.



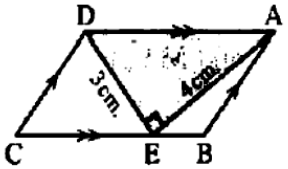
٢. If the area of ▱ ABCD = 600 cm^2 ,
then CD = ... cm. ,
BE = ... cm.



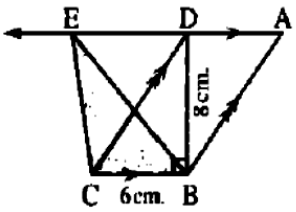
٣. **In the opposite figure :**
ABCD is a parallelogram and E ∈ $\overrightarrow{AD}$
Complete the following :
1 The area of Δ EBC = ... the area of ▱ ABCD
2 If the area of Δ EBC = 20 cm^2 , then the area of ▱ ABCD = ... cm^2



٤. **In the opposite figure :**
ABCD is a parallelogram , AE = 4 cm. , ED = 3 cm.
, m (∠ AED) = 90° and E ∈ $\overline{BC}$ **Complete :**
1 The area of Δ AED = ... cm^2 2 The area of ▱ ABCD = ... cm^2



٥. **In the opposite figure :**
ABCD is a parallelogram in which , BC = 6 cm. , $\overline{DB} \perp \overline{BC}$,
such that , DB = 8 cm. and E ∈ $\overrightarrow{AD}$
Complete :
1 The area of ▱ ABCD = ... cm^2 2 The area of Δ EBC = ... cm^2



Choose the correct answer :

١. If the base length of a parallelogram is 7 cm. and the corresponding height is 4 cm. , then its area = ...

(a) 11 cm^2 (b) 14 cm^2 (c) 22 cm^2 (d) 28 cm^2

---

٢. If the area of a parallelogram is 35 cm^2 and its height is 5 cm. , then the length of the corresponding base is .....

(a) 5 cm. (b) 7 cm. (c) 9 cm. (d) 30 cm.

---

٣. If ABCD is a parallelogram in which , AB = 5 cm. , BC = 10 cm. and its smaller height is 4 cm. , then its greater height = ...

(a) 2 cm. (b) 4 cm. (c) 8 cm. (d) 10 cm.

---

٤. A parallelogram whose area = 50 cm^2 and the length of its base equals twice the corresponding height , then this height = ...

(a) 50 cm. (b) 25 cm. (c) 10 cm. (d) 5 cm.

---

٥. The ratio between the area of the parallelogram and the area of the triangle whose base is common and are included between two parallel straight lines = ...

(a) 1 : 2 (b) 1 : 3 (c) 2 : 1 (d) 2 : 3

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٦. If the area of the triangle is 42 cm^2 and its height = 7 cm. , then the length of the corresponding base = ...

(a) 15 cm. (b) 12 cm. (c) 8 cm. (d) 4 cm.

٧. The area of a right-angled triangle in which the lengths of the sides of the right angle are 6 cm. and 9 cm. equals .....

(a) 54 cm^2 (b) 60 cm^2 (c) 27 cm^2 (d) 15 cm^2

---

٨. The area of the rectangle whose dimensions are 6 cm. and 4 cm. ..... the area of the triangle whose base length is 12 cm. and the corresponding height is 4 cm.

(a) < (b) > (c) = (d) ≠

Essay problems:

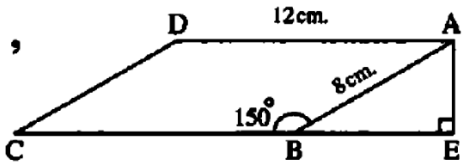
In the opposite figure :

ABCD is a parallelogram in which m (∠ ABC) = 150° ,

AD = 12 cm.

, AB = 8 cm. , E ∈ $\overrightarrow{CB}$ and $\overline{AE} \perp \overrightarrow{CB}$

Find : The area of ▱ ABCD



« 48 cm^2 »

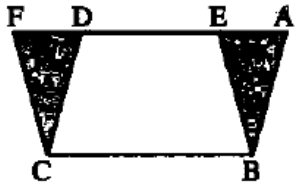
2)

In the opposite figure :

ABCD and EBCF are two parallelograms ,

E ∈ $\overleftrightarrow{AD}$ and F ∈ $\overleftrightarrow{AD}$

Prove that : The area of Δ ABE = the area of Δ DCF



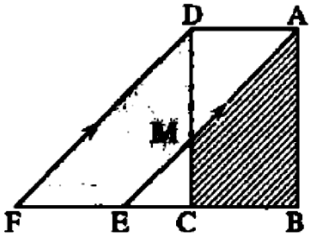
3)

In the opposite figure :

ABCD is a rectangle , $\overline{AE} \,//\, \overline{DF}$

Prove that :

The area of the figure ABCM = the area of the figure DMEF



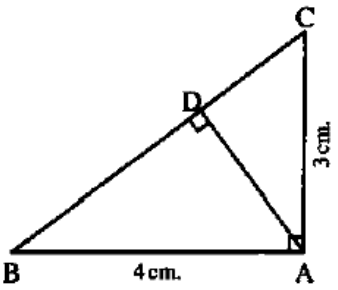
4)

In the opposite figure :

ABC is a right-angled triangle at A ,

$\overline{AD} \perp \overline{BC}$, AB = 4 cm. and AC = 3 cm.

Find : 1 The area of Δ ABC 2 The length of $\overline{AD}$

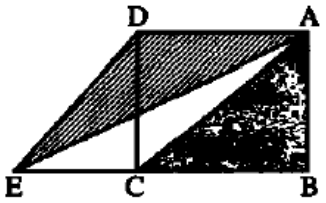


5)

In the opposite figure :

ABCD is a rectangle and $E \in \overrightarrow{BC}$

Prove that : The area of Δ DAE = the area of Δ ABC



6)

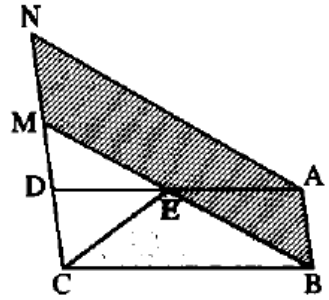
In the opposite figure :

ABCD and ABMN are two parallelograms

and $M \in \overline{CD}$

Prove that :

The area of Δ EBC = $\frac{1}{2}$ the area of $\square$ ABMN

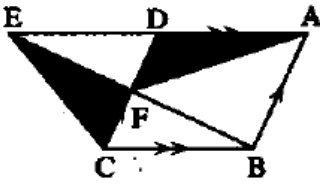


7)

In the opposite figure :

ABCD is a parallelogram , $E \in \overrightarrow{AD}$ and $\overline{BE} \cap \overline{CD} = \{F\}$

Prove that : The area of Δ AFD = the area of Δ EFC



8)

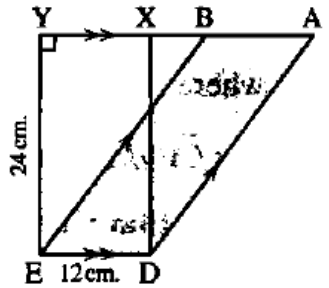
In the opposite figure :

$\overleftrightarrow{AB} // \overleftrightarrow{DE}$, X and $Y \in \overleftrightarrow{AB}$

, XDEY is a rectangle and $\overline{AD} // \overline{BE}$

1 Find the area of the figure ABED

2 If : AD = 30 cm. , find the length of the perpendicular from B to $\overline{AD}$



« 288 cm^2 , 9.6 cm. »

9)

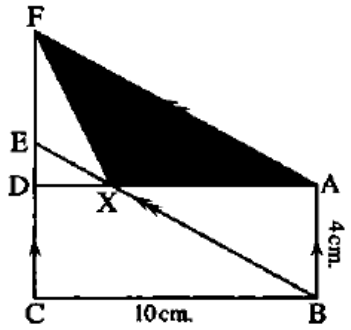
In the opposite figure :

ABCD is a rectangle , ABEF is a parallelogram , $D \in \overline{CF}$, $X \in \overline{BE}$, $E \in \overline{CF}$, AB = 4 cm. and BC = 10 cm.

Find by proof :

1 The area of ▱ ABEF

2 The area of Δ XAF



« 40 cm^2 , 20 cm^2 »

10)

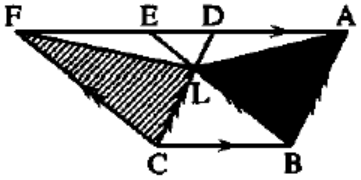
📖 **In the opposite figure :**

ABCD and EBCF are two parallelograms , $\overline{BE} \cap \overline{CD} = \{L\}$, $D \in \overline{AF}$ and $E \in \overline{AF}$

Prove that :

1 The area of Δ ABL = the area of Δ FCL

2 The area of the figure ABCL = the area of the figure FCBL



Lesson 2

The equality of the areas of two triangles

Complete each of the following :

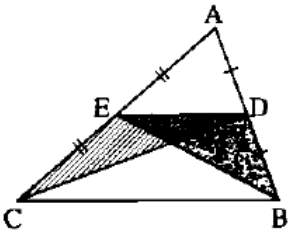
١.	If ABC is a triangle , D is the midpoint of $\overline{BC}$, then : The area of Δ ABD = the area of Δ .....
٢.	If $\overline{XL}$ is a median in Δ XYZ , then the area of Δ XYZ = ... the area of Δ XYL
٣.	The triangle XYZ in which $L \in \overline{YZ}$ such that $YL = \frac{1}{2} LZ$, then: The area of Δ XYL = ... the area of Δ XYZ
٤.	The two triangles drawn on a common base and their vertices located on a straight line parallel to the base are .....
٥.	Triangles with congruent bases and drawn between two parallel lines are .....
٦.	The median in the triangle divides its area into .....

Essay problems:

In the opposite figure :

D is the midpoint of $\overline{AB}$ and E is the midpoint of $\overline{AC}$

Prove that : The area of Δ BDE equals the area of Δ CDE



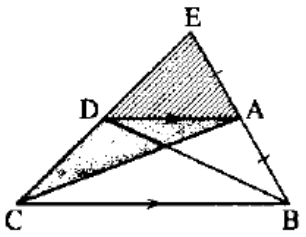
2)

In the opposite figure :

ABCD is a quadrilateral in which $\overline{AD} // \overline{BC}$ and $\overrightarrow{BA} \cap \overrightarrow{CD} = \{E\}$

such that BA = AE

Prove that : The area of Δ ADC = the area of Δ ADE

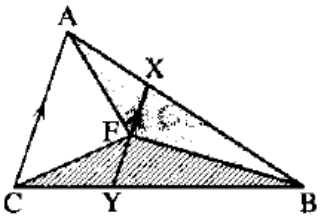


3)

📖 **In the opposite figure :**

$\overline{AC}$ // $\overline{XY}$ and F is the midpoint of $\overline{XY}$

Prove that : The area of Δ ABF = the area of Δ CBF

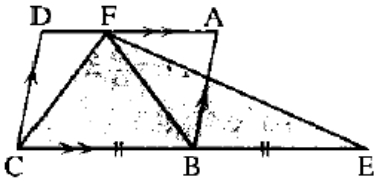


4)

📖 **In the opposite figure :**

ABCD is a parallelogram. $E \in \overrightarrow{CB}$ where BC = BE

Prove that : The area of Δ FEC = the area of ▱ ABCD



5)

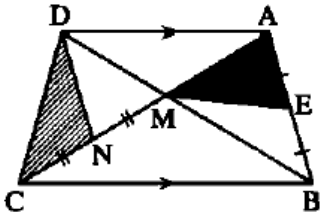
📖 **In the opposite figure :**

ABCD is a quadrilateral whose diagonals intersect at M,

$\overline{AD}$ // $\overline{BC}$ and E is the midpoint of $\overline{AB}$,

N is the midpoint of $\overline{MC}$

Prove that : The area of Δ AEM = the area of Δ DNC



6)

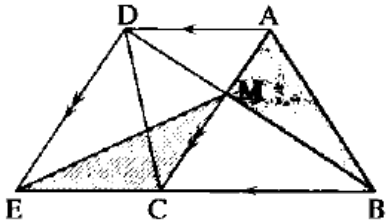
📖 **In the opposite figure :**

$\overleftrightarrow{AD}$ // $\overleftrightarrow{BC}$, $E \in \overrightarrow{BC}$ and $\overleftrightarrow{AC}$ // $\overleftrightarrow{DE}$,

$\overline{AC} \cap \overline{BD} = \{M\}$

Prove that :

1. The area of Δ ABM = the area of Δ DCM = the area of Δ EMC
2. The area of Δ DBC = the area of Δ EBM



Lesson 3

The area of some geometric figures

Complete each of the following :

١.	The area of rhombus whose perimeter is 20 cm. and height 4 cm. = ...
٢.	The length of the diagonal of a square of area 50 cm^2 equals ..... cm.
٣.	The length of side of a square whose area equals the area of a rectangle with dimensions 9 cm. , 16 cm. = ...
٤.	The length of the middle base of a trapezium whose area = 30 cm^2 and height 5 cm. equals .....
٥.	The area of the rhombus = the side length × ..... = $\frac{1}{2}$ of the product of .....
٦.	The area of the square = the square of the length of ..... = $\frac{1}{2}$ .....
٧.	The length of the middle base of the trapezium equals .....
٨.	The area of the trapezium = half of the sum of lengths of the two parallel bases × ..... = the length of ..... × its height
٩.	The base angles of the isosceles trapezium are .....
١٠.	The diagonals of an isosceles trapezium are .....

Choose the correct answer :

١. If the area of a square is 50 cm^2, then the length of its diagonal = ...

(a) 25 cm. (b) 5 cm. (c) 10 cm. (d) 20 cm.

٢. If the perimeter of a rhombus is 24 cm. and its area = 30 $cm.^2$ then its height = ...

(a) 4 cm. (b) 5 cm. (c) 6 cm. (d) 12 cm.

٣. If the product of the lengths of the diagonals of a rhombus = 96 cm^2 and its height is 6 cm., then its side length = ...

(a) 12 cm. (b) 8 cm. (c) 6 cm. (d) 4 cm.

٤. If the area of a trapezium is 32 cm^2 and its height is 4 cm., then the length of its middle base = ...

(a) 4 cm. (b) 8 cm. (c) 14 cm. (d) 16 cm.

٥. The trapezium in which the length of one of its parallel bases is 15 cm., and its area is 108 cm^2 and its height is 8 cm., then the length of the other base is .....

(a) 15 cm. (b) 4 cm. (c) 12 cm. (d) 27 cm.

٦. The trapezium whose middle base length is x cm. and its height = $\frac{1}{2}$ the length of the middle base, its area = ... cm^2

(a) x^2 (b) $\frac{x^2}{2}$ (c) $\frac{x^2}{4}$ (d) $\frac{x^2}{8}$

Find the area of the following figures:

١. A rhombus of side length 6 cm. and its height = 5 cm. « 30 cm^2 »

.....

٢. A rhombus whose diagonal lengths are 24 cm. and 10 cm. « 120 cm^2 »

.....

٣. A square whose diagonal length = 10 cm. « 50 cm^2 »

.....

٤. A trapezium whose bases lengths are 8 cm. and 10 cm. and its height = 5 cm. « 45 cm^2 »

.....

٥. A trapezium whose middle base length is 7 cm. and its height = 6 cm. « 42 cm^2 »

Essay problems:

١. A square whose area equals the area of the rectangle whose dimensions are 2 cm. and 9 cm. Find the length of its diagonal. « 6 cm. »

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٢. 🕮 Two pieces of land have equal areas , one of them has the shape of a rhombus whose diagonals are 18 m. and 24 m. , and the other one has the shape of a trapezium whose height is 12 m. Find the length of its middle base. « 18 m. »

.....

.....

.....

🕮 The area of a trapezium is 180 cm^2 and its height is 12 cm. Find the lengths of its parallel bases if the ratio between their lengths is 3 : 2 « 18 cm. , 12 cm. »

٤. Two land pieces are equal in area , the first is in the shape of a square and the second is in the shape of a rhombus whose diagonals lengths are 8 metres and 16 metres. Find the perimeter of the square-shaped piece. « 32 cm. »

.....

.....

.....

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٥. 🕮 Find the area of the rhombus whose perimeter is 52 cm. and the length of one of its diagonals is 10 cm. « 120 cm^2 »

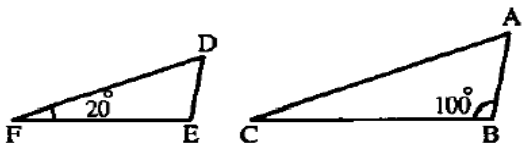
Lesson 4 (Similarity)

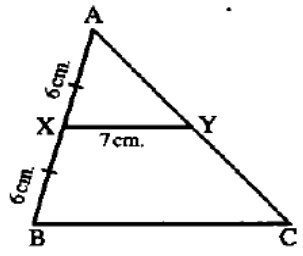
Complete each of the following :

١.	If the measures of the corresponding angles in the two triangles are equal , then the two triangles are .....
٢.	If we have two polygons , their corresponding angles are ..... and their corresponding sides lengths are ..... , then the two polygons are similar.
٣.	If the ratio between the lengths of two corresponding sides in two similar triangles is equal to 1 , then the two triangles are .....
٤.	If two polygons are similar and the ratio between the lengths of two corresponding sides is 3 : 4 , then the ratio between their perimeters is .....
٥.	If two polygons are similar , then the corresponding ..... are equal in measure.
٦.	If two polygons are similar , then the corresponding ..... are proportional.
٧.	If each of two polygons is similar to a third , then they are .....
٨.	The two triangles are similar if the corresponding ..... are proportional.

Choose the correct answer :

١.	If the ratio between the lengths of two corresponding sides of two squares is 1 and the perimeter of one of them is 20 cm. , then the area of the other square = ... (a) 20 cm^2 (b) 25 cm^2 (c) 16 cm^2 (d) 25 cm.
٢.	**In the opposite figure :** If $\Delta ABC \sim \Delta DEF$, then m ($\angle A$) = ... (a) 20° (b) 60° (c) 80° (d) 100°
٣.	**In the opposite figure :** If $\Delta ABC \sim \Delta AXY$, AX = XB = 6 cm. XY = 7 cm. , then BC = ... (a) 6 cm. (b) 7 cm. (c) 12 cm. (d) 14 cm.





٤. If $\Delta ABC \sim \Delta DEF$ and $AB = \frac{1}{5} DE$, then perimeter of ΔABC = ... perimeter of ΔDEF

(a) 5 (b) 1 (c) $\frac{1}{5}$ (d) $\frac{2}{5}$

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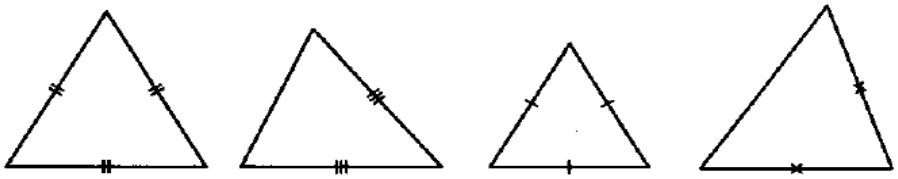
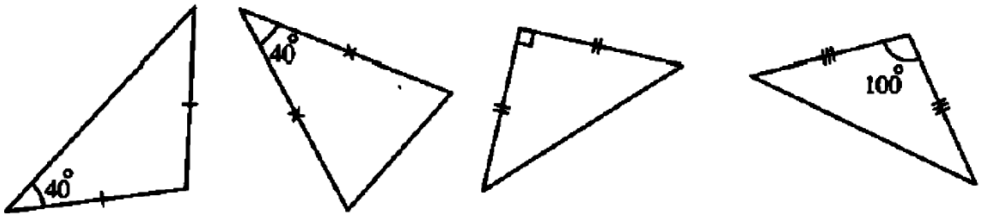
٥. In the following figures , there are two similar triangles , they are .....



(1) (2) (3) (4)

(a) 1 , 2 (b) 1 , 3 (c) 1 , 4 (d) 2 , 4

٦. In the following figures , there are two similar triangles , they are .....



(1) (2) (3) (4)

(a) 1 , 2 (b) 1 , 3 (c) 2 , 4 (d) 1 , 4

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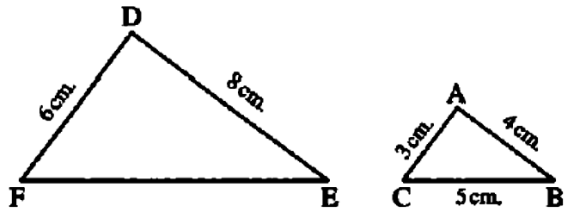
٧. **In the opposite figure :**

If $\Delta ABC \sim \Delta DEF$, then EF = ...

(a) 5 cm. (b) 6 cm.

(c) 8 cm. (d) 10 cm.

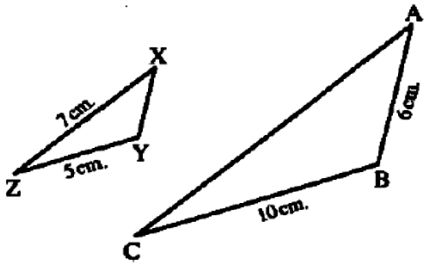


Essay problems:

In the opposite figure :

$\Delta ABC \sim \Delta XYZ$

Find : AC and XY « 14 cm. , 3 cm. »



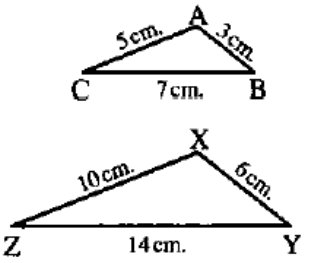
2)

In the opposite figure :

1 **Prove that :** ΔABC and ΔXYZ are similar.

2 If : $m(\angle B) + m(\angle C) = 60°$,

find : $m(\angle X)$ « 120° »



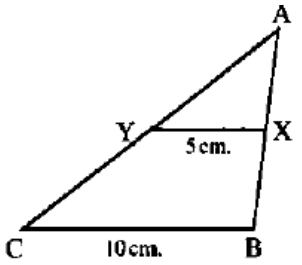
3)

In the opposite figure :

If $\Delta AXY \sim \Delta ABC$

$XY = 5$ cm. and $BC = 10$ cm. ,

Prove that : **1** $\overline{XY} \parallel \overline{BC}$ **2** Y is the midpoint of $\overline{AC}$



4)

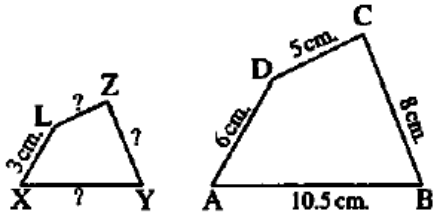
In the opposite figure :

The polygon ABCD ~ the polygon XYZL

If AB = 10.5 cm. , BC = 8 cm. , CD = 5 cm. ,

DA = 6 cm. and LX = 3 cm.

Find the length of each of : $\overline{XY}$, $\overline{YZ}$ and $\overline{ZL}$ « 5.25 cm. , 4 cm. , 2.5 cm. »



5)

In the opposite figure :

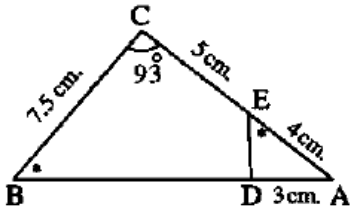
ΔABC , $D \in \overline{AB}$, $E \in \overline{AC}$

, AE = 4 cm. , EC = 5 cm. , BC = 7.5 cm.

, AD = 3 cm. , $m(\angle AED) = m(\angle B)$ and $m(\angle C) = 93°$

1 **Prove that :** $\Delta AED \sim \Delta ABC$

2 **Find the length of each of :** $\overline{BD}$ and $m(\angle ADE)$ « 9 cm. , 93° »

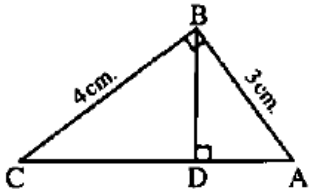


6)

In the opposite figure :

ABC is a right-angled triangle at B in which :

AB = 3 cm. , BC = 4 cm. and $\overline{BD} \perp \overline{AC}$



1 Prove that : $\Delta BAC \sim \Delta DAB$

2 Find the length of each of : $\overline{AD}$ and $\overline{DC}$

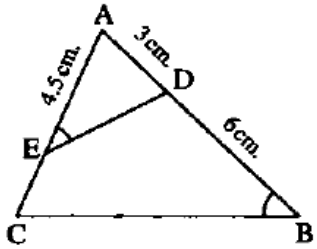
« 1.8 cm. , 3.2 cm. »

7)

In the opposite figure :

m (∠ AED) = m (∠ B) , AD = 3 cm.

AE = 4.5 cm. and BD = 6 cm.



1 Prove that : $\Delta ADE \sim \Delta ACB$

2 Find the length of : $\overline{EC}$

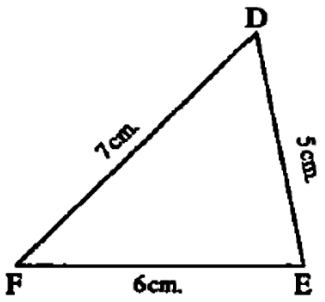
« 1.5 cm. »

Lesson 5 (the converse of Pythagorean theorem)

Complete each of the following :

Complete and show which of the following triangles is a right-angled triangle :

1

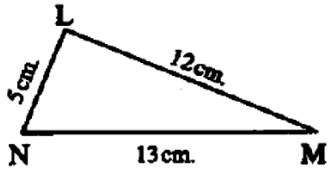


$(DF)^2$ = ...

$(DE)^2 + (EF)^2$ = ...

∴ The triangle is .....

2

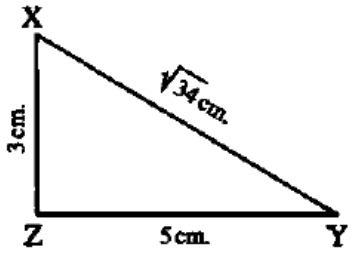


$(MN)^2$ = ...

$(ML)^2 + (NL)^2$ = ...

∴ The triangle is .....

3

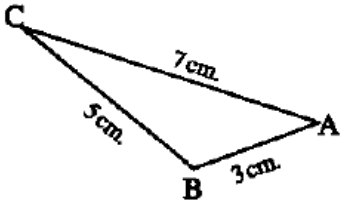


$(XY)^2 = (\sqrt{34})^2$ = ...

$(YZ)^2 + (ZX)^2$ = ...

∴ The triangle is .....

4



$(AC)^2$ = ...

$(AB)^2 + (BC)^2$ = ...

∴ The triangle is .....

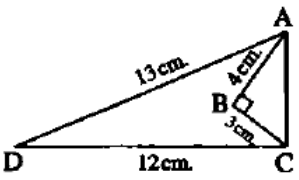
Essay problems:

In the opposite figure :

m (∠ B) = 90° , AB = 4 cm. , BC = 3 cm.

AD = 13 cm. and DC = 12 cm.

Find : The area of the figure ABCD



« 24 cm^2 »

2)

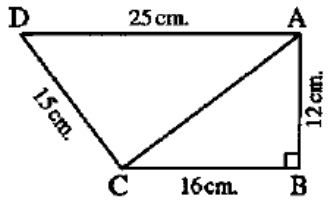
In the opposite figure :

ABCD is a quadrilateral in which : m (∠ B) = 90° ,

AB = 12 cm. , BC = 16 cm. , CD = 15 cm. and DA = 25 cm.

1 **Find :** The length of $\overline{AC}$

2 **Prove that :** m (∠ ACD) = 90°



« 20 cm. »

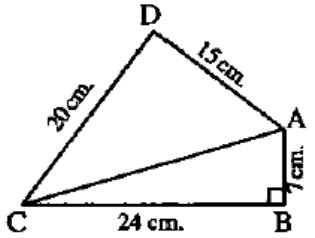
3)

In the opposite figure :

ABCD is a quadrilateral in which : m (∠ ABC) = 90° ,

AB = 7 cm. , BC = 24 cm. , CD = 20 cm. and DA = 15 cm.

Prove that : m (∠ ADC) = 90°



4)

📖 **In the opposite figure :**

ABCD is a quadrilateral in which : m (∠ B) = 90° ,

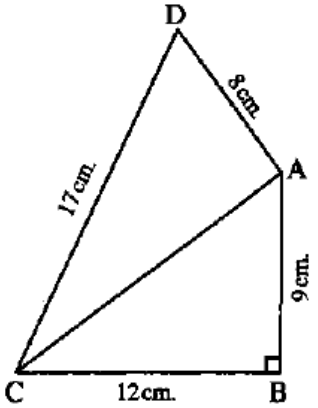
AB = 9 cm. , BC = 12 cm. ,

CD = 17 cm. and DA = 8 cm.

Prove that : m (∠ DAC) = 90° ,

then find : The area of the figure ABCD

« 114 cm^2 »



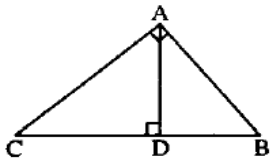
Lesson 6 (Projection)

Complete each of the following :

١. **Example 1**

In the opposite figure :

Δ ABC is right-angled at A and $\overline{AD} \perp \overline{BC}$



Complete the following :

1 The projection of $\overline{AB}$ on $\overleftrightarrow{BC}$ is .....

2 The projection of $\overline{AC}$ on $\overleftrightarrow{BC}$ is .....

3 The projection of $\overline{BC}$ on $\overleftrightarrow{AC}$ is .....

4 The projection of $\overline{BC}$ on $\overleftrightarrow{AB}$ is .....

5 The projection of $\overline{AC}$ on $\overleftrightarrow{AD}$ is .....

6 The projection of $\overline{AD}$ on $\overleftrightarrow{BC}$ is .....

7 The projection of $\overline{AB}$ on $\overleftrightarrow{AD}$ is .....

٢. If $X \in \overleftrightarrow{AB}$, then the projection of X on $\overleftrightarrow{AB}$ is .....

٣. If $\overline{AB} \perp \overline{BC}$, then the projection of $\overline{AB}$ on $\overleftrightarrow{BC}$ is .....

٤. In Δ ABC , if m ($\angle$B) = 90° , then the projection of C on $\overleftrightarrow{AB}$ is .....

٥. ABC is a right-angled triangle at A , then the projection of $\overline{BA}$ on $\overleftrightarrow{AC}$ is .....

Choose the correct answer :

١. The projection of a ray on a straight line not perpendicular to it is .....

(a) a point. (b) a line segment. (c) a ray. (d) a straight line.

٢. The length of the projection of a line segment on a given straight line ..... the length of the line segment itself.

(a) $\leq$ (b) $>$ (c) $\geq$ (d) $=$

٣. The length of the projection of a line segment on a straight line parallel to it ..... the length of the main line segment.

(a) $<$ (b) $>$ (c) $=$ (d) $\neq$

٤. The length of the projection of a line segment on a straight line perpendicular to it is .....

(a) greater than the length of the main line segment.

(b) equal to the length of the main line segment.

(c) greater than or equal to the length of the main line segment.

(d) equal to zero.

Essay problems:

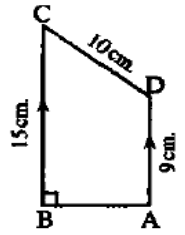
In the opposite figure :

ABCD is a trapezium in which $\overline{AD}$ // $\overline{BC}$ and m (∠ ABC) = 90°

If AD = 9 cm. , DC = 10 cm. and CB = 15 cm.

Find :

1. The length of the projection of $\overline{DC}$ on $\overleftrightarrow{BC}$
2. The length of the projection of $\overline{DC}$ on $\overleftrightarrow{AB}$



« 6 cm., 8 cm. »

2)

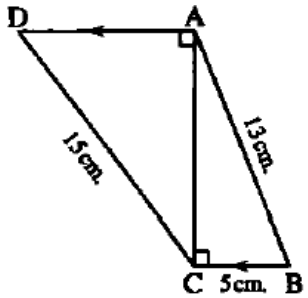
In the opposite figure :

$\overline{AD}$ // $\overline{BC}$, AB = 13 cm. , BC = 5 cm. ,

CD = 15 cm. and m (∠ ACB) = m (∠ DAC) = 90°

Find :

1. The length of the projection of $\overline{AB}$ on $\overleftrightarrow{AC}$
2. The length of the projection of $\overline{CD}$ on $\overleftrightarrow{AD}$



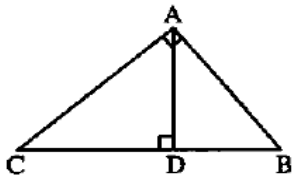
« 12 cm., 9 cm. »

Lesson 7 (Eucledian theorem)

Complete each of the following :

In the opposite figure :

Δ ABC is right-angled at A , $\overline{AD} \perp \overline{BC}$



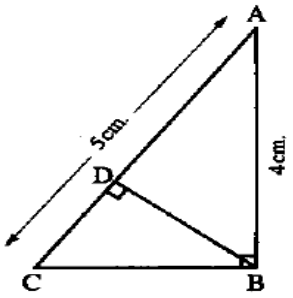
Complete each of the following :

1. $(AC)^2$ = ... + ...
2. $(AC)^2$ = ... – .....
3. $(AC)^2$ = ... × .....
4. $(AD)^2$ = ... × .....
5. AC × AB = ... × .....
6. Δ ABC ~ Δ ..... ~ Δ .....

2)

In the opposite figure :

ABC is a triangle in which m ($\angle$ ABC) = 90° , AB = 4 cm. , AC = 5 cm. and $\overline{BD} \perp \overline{AC}$



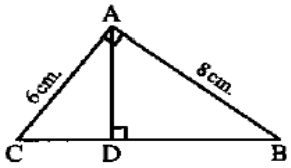
Complete :

1. BC = ... cm.
2. AD = ... cm.
3. BD = ... cm.
4. The area of Δ DBC = ... cm^2

Essay problems:

In the opposite figure :

ABC is a triangle in which m ($\angle$ BAC) = 90° , $\overline{AD} \perp \overline{BC}$, AB = 8 cm. and AC = 6 cm.



Find : BD , CD and AD

« 6.4 cm. , 3.6 cm. , 4.8 cm. »

4)

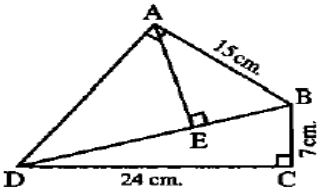
In the opposite figure :

ABCD is a quadrilateral where

m ($\angle$ BCD) = m ($\angle$ BAD) = 90° ,

$\overline{AE} \perp \overline{BD}$, BC = 7 cm. , CD = 24 cm.

and AB = 15 cm.



Find :

1. The length of each of $\overline{BD}$ and $\overline{AD}$
2. The length of the projection of $\overline{AB}$ on $\overleftrightarrow{BD}$
3. The length of the projection of $\overline{AD}$ on $\overleftrightarrow{AE}$

« 25 cm. , 20 cm. , 9 cm. , 12 cm. »

5)

In the opposite figure :

Δ ABC is right-angled at B

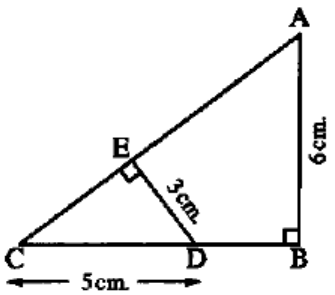
, $\overline{DE} \perp \overline{AC}$, AB = 6 cm.

, ED = 3 cm. and CD = 5 cm.

Prove that : Δ CED ~ Δ CBA

and find : The length of $\overline{AC}$

and the length of the projection of $\overline{AB}$ on $\overleftrightarrow{AC}$



« 10 cm. , 3.6 cm. »

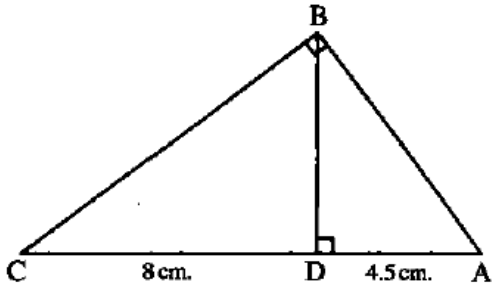
6)

In the opposite figure :

Δ ABC is right-angled at B and $\overline{BD} \perp \overline{AC}$

If AD = 4.5 cm. and DC = 8 cm. ,

find : The length of each of $\overline{AB}$, $\overline{BC}$ and $\overline{BD}$



« 7.5 cm. , 10 cm. , 6 cm. »

Lesson 8 (classifying triangles according to angles)

Complete each of the following :

١.	In Δ ABC , if $(AB)^2 = (AC)^2 - (BC)^2$, then ∠ C is .....
٢.	In Δ ABC , if $(AC)^2 - (AB)^2 = (BC)^2 - 3$, then ∠ B is .....
٣.	In Δ ABC , if $(AB)^2 + (BC)^2 = 48$ cm^2 , AC = 7 cm. , then ∠ B is .....
٤.	In Δ XYZ , if $90° < m(\angle Y) < 180°$, then $(XZ)^2$ ..... $(XY)^2 + (YZ)^2$
٥.	If ∠ A complements ∠ B in Δ ABC , then $(AB)^2$ ..... $(AC)^2 + (BC)^2$
٦.	If the two lengths of two sides in a triangle are 3 cm. and 5 cm , then the length of the third side is between ..... , ...
٧.	ABC is a triangle whose sides lengths are 6 cm., 8 cm. and 11 cm. Δ ABC is similar to the triangle XYZ , then Δ XYZ is ..... according to its angles.
٨.	In Δ XYZ , if $(XZ - XY)(XZ + XY) < (ZY)^2$, then ∠ Y is .....

Choose the correct answer :

١.	Atriangle whose side lengths are : 5 cm , 12 cm and 13 cm. its area = ... cm^2 (a) 30 (b) 32.5 (c) 78 (d) 60
٢.	ABC is an obtuse-angled triangle at A , if AB = 4 cm. , BC = 7 cm. , then AC can be equals ..... cm. (a) 5 (b) 6 (c) 7 (d) 8
٣.	ABC is a triangle in which : $(BC)^2 = (AB)^2 + (AC)^2$, $m(\angle B) = 40°$, then $m(\angle C)$ = ... (a) 40° (b) 50° (c) 90° (d) 140°
٤.	ABC is an obtuse-angled triangle at B if AB = 5 cm. , BC = 3 cm. , then AC can be equals ..... cm. (a) 4 (b) 5 (c) 7 (d) 8
٥.	ABC is an acute-angled triangle in which AB = 6 cm. , BC = 8 cm. , then the length of $\overline{AC}$ can be equals ..... cm. (a) 2 (b) 6 (c) 10 (d) 14

Essay problems:

Identify the type of $\angle A$ in ΔABC if AB = 6 cm. , BC = 10 cm. and AC = 8 cm.

7)

Identify the type of $\angle B$ in ΔABC if AB = 10 cm. , BC = 12 cm. and AC = 15 cm.

8)

In the opposite figure :

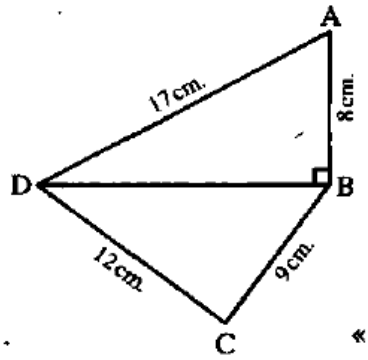
ABCD is a quadrilateral in which AB = 8 cm.,

BC = 9 cm. , CD = 12 cm. , AD = 17 cm.

and $\overline{DB} \perp \overline{AB}$

1 Find the length of the projection of $\overline{AD}$ on $\overleftrightarrow{BD}$

2 Determine the type of ΔBCD according to its angles.



« 15 cm. »

9)

Identify the type of $\angle Y$ in ΔXYZ if XY = 4 cm. , YZ = 5 cm. and XZ = 7 cm.

10)

In the opposite figure :

ABCD is a parallelogram in which

BC = 15 cm. , CD = 8 cm. and AC = 19 cm.

Prove that : $\angle ABC$ is an obtuse angle.