

7 1 Polygons 2nd Half Diagonal, N, Midsegment of a Triangle Proof

Lesson 077 | Geometry | Triangle midsegments and centers • Triangles, congruence and inequality

<https://www.youtube.com/watch?v=z0QnINTL6ok>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

A triangle median AD has length 18. G is the centroid. Find AG and GD. A midsegment parallel to a side of length 98 is also drawn; find its length.

02

Triangle ABC is congruent to triangle DEF in that order. $AB=2x+3$, $DE=17$, $BC=36$, and angle $C=35^\circ$. Find x , EF, and angle F, naming the justification.

03

A triangle median AD has length 18. G is the centroid. Find AG and GD. A midsegment parallel to a side of length 112 is also drawn; find its length.

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04

An isosceles triangle has equal base angles $(6x + 8)^\circ$ and vertex angle 140° . Find x and classify its angles.

05

A triangle median AD has length 33. G is the centroid. Find AG and GD . A midsegment parallel to a side of length 196 is also drawn; find its length.

06

Triangle ABC is congruent to triangle DEF in that order. $AB=4x+11$, $DE=47$, $BC=15$, and angle $C=45^\circ$. Find x , EF , and angle F , naming the justification.

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01

A triangle median AD has length 18. G is the centroid. Find AG and GD . A midsegment parallel to a side of length 98 is also drawn; find its length.

The centroid divides a median 2:1 from the vertex: $AG=12$, $GD=6$. A midsegment is half its parallel side: 49.

02

Triangle ABC is congruent to triangle DEF in that order. $AB=2x+3$, $DE=17$, $BC=36$, and angle $C=35^\circ$. Find x , EF , and angle F , naming the justification.

Correspondence A / D , B / E , C / F . CPCTC gives $AB=DE$, so $x=7$; $EF=BC=36$; angle $F=\text{angle } C=35^\circ$.

03

A triangle median AD has length 18. G is the centroid. Find AG and GD . A midsegment parallel to a side of length 112 is also drawn; find its length.

The centroid divides a median 2:1 from the vertex: $AG=12$, $GD=6$. A midsegment is half its parallel side: 56.

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04

An isosceles triangle has equal base angles $(6x + 8)^\circ$ and vertex angle 140° . Find x and classify its angles.

Angle sum: $2(6x+8)+(140)=180$, giving $x=2$. Base angles 20° ; vertex angle 140° . Classify as right if an angle is 90° , obtuse if one exceeds 90° , otherwise acute.

05

A triangle median AD has length 33. G is the centroid. Find AG and GD . A midsegment parallel to a side of length 196 is also drawn; find its length.

The centroid divides a median 2:1 from the vertex: $AG=22$, $GD=11$. A midsegment is half its parallel side: 98.

06

Triangle ABC is congruent to triangle DEF in that order. $AB=4x+11$, $DE=47$, $BC=15$, and angle $C=45^\circ$. Find x , EF , and angle F , naming the justification.

Correspondence A / D , B / E , C / F . CPCTC gives $AB=DE$, so $x=9$; $EF=BC=15$; angle $F=$ angle $C=45^\circ$.