

Geometry Honors 5.1 Classifying Triangles

Lesson 044 | Geometry | Triangles, congruence and inequality

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

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

An isosceles triangle has equal base angles $(6x + 9)^\circ$ and vertex angle 102° . Find x and classify its angles.

02

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+7$, $DE=85$, $BC=12$, and angle $C=43^\circ$. Find x , EF , and angle F , naming the justification.

03

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+9$, $DE=69$, $BC=28$, and angle $C=45^\circ$. Find x , EF , and angle F , naming the justification.

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04

An isosceles triangle has equal base angles $(6x + 13)^\circ$ and vertex angle 82° . Find x and classify its angles.

05

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+3$, $DE=75$, $BC=30$, and angle $C=39^\circ$. Find x , EF , and angle F , naming the justification.

06

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+12$, $DE=96$, $BC=18$, and angle $C=48^\circ$. Find x , EF , and angle F , naming the justification.

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01

An isosceles triangle has equal base angles $(6x + 9)^\circ$ and vertex angle 102° . Find x and classify its angles.

Angle sum: $2(6x+9)+(102)=180$, giving $x=5$. Base angles 39° ; vertex angle 102° . Classify as right if an angle is 90° , obtuse if one exceeds 90° , otherwise acute.

02

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+7$, $DE=85$, $BC=12$, and angle $C=43^\circ$. Find x , EF, and angle F, naming the justification.

Correspondence A / D, B / E, C / F. CPCTC gives $AB=DE$, so $x=13$; $EF=BC=12$; angle F=angle C= 43° .

03

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+9$, $DE=69$, $BC=28$, 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 $x=10$; $EF=BC=28$; angle F=angle C= 45° .

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04

An isosceles triangle has equal base angles $(6x + 13)^\circ$ and vertex angle 82° . Find x and classify its angles.

Angle sum: $2(6x+13)+(82)=180$, giving $x=6$. Base angles 49° ; vertex angle 82° . Classify as right if an angle is 90° , obtuse if one exceeds 90° , otherwise acute.

05

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+3$, $DE=75$, $BC=30$, and angle $C=39^\circ$. Find x , EF, and angle F, naming the justification.

Correspondence A / D, B / E, C / F. CPCTC gives $AB=DE$, so $x=12$; $EF=BC=30$; angle F=angle C= 39° .

06

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+12$, $DE=96$, $BC=18$, and angle $C=48^\circ$. Find x , EF, and angle F, naming the justification.

Correspondence A / D, B / E, C / F. CPCTC gives $AB=DE$, so $x=14$; $EF=BC=18$; angle F=angle C= 48° .