

Summer Geometry Semester 1 Unit 2 Triangle Part 2

Lesson 017 | Geometry | Triangles, congruence and inequality

https://www.youtube.com/watch?v=muwQeB_kJWI

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

An isosceles triangle has equal base angles $(6x + 2)^\circ$ and vertex angle 128° . Find x and classify its angles.

02

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+11$, $DE=35$, $BC=30$, and angle $C=47^\circ$. Find x , EF , and angle F , naming the justification.

03

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+9$, $DE=87$, $BC=18$, 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 $(5x + 2)^\circ$ and vertex angle 116° . Find x and classify its angles.

05

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+12$, $DE=90$, $BC=30$, and angle $C=48^\circ$. Find x , EF , and angle F , naming the justification.

06

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+2$, $DE=50$, $BC=20$, and angle $C=38^\circ$. Find x , EF , and angle F , naming the justification.

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01

An isosceles triangle has equal base angles $(6x + 2)^\circ$ and vertex angle 128° . Find x and classify its angles.

Angle sum: $2(6x+2)+(128)=180$, giving $x=4$. Base angles 26° ; vertex angle 128° . 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. $AB=6x+11$, $DE=35$, $BC=30$, and angle $C=47^\circ$. Find x , EF, and angle F, naming the justification.

Correspondence A / D, B / E, C / F. CPCTC gives $AB=DE$, so $x=4$; $EF=BC=30$; angle $F=\text{angle } C=47^\circ$.

03

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+9$, $DE=87$, $BC=18$, 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 $x=13$; $EF=BC=18$; angle $F=\text{angle } C=45^\circ$.

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04

An isosceles triangle has equal base angles $(5x + 2)^\circ$ and vertex angle 116° . Find x and classify its angles.

Angle sum: $2(5x+2)+(116)=180$, giving $x=6$. Base angles 32° ; vertex angle 116° . 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. $AB=6x+12$, $DE=90$, $BC=30$, 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 $x=13$; $EF=BC=30$; angle F=angle C= 48° .

06

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+2$, $DE=50$, $BC=20$, and angle $C=38^\circ$. Find x , EF, and angle F, naming the justification.

Correspondence A / D, B / E, C / F. CPCTC gives $AB=DE$, so $x=8$; $EF=BC=20$; angle F=angle C= 38° .