

Summer Geometry Semester 1 Unit 2 Triangles Part 1

Lesson 016 | Geometry | Triangles, congruence and inequality

<https://www.youtube.com/watch?v=O7wSThMPbSE>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

An isosceles triangle has equal base angles $(6x + 12)^\circ$ and vertex angle 108° . Find x and classify its angles.

02

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+14$, $DE=68$, $BC=12$, and angle $C=50^\circ$. Find x , EF , and angle F , naming the justification.

03

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+14$, $DE=68$, $BC=18$, and angle $C=50^\circ$. Find x , EF , and angle F , naming the justification.

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04

An isosceles triangle has equal base angles $(5x + 10)^\circ$ and vertex angle 120° . Find x and classify its angles.

05

Triangle ABC is congruent to triangle DEF in that order. $AB=5x+2$, $DE=67$, $BC=12$, and angle $C=37^\circ$. Find x , EF , and angle F , naming the justification.

06

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+5$, $DE=65$, $BC=6$, and angle $C=41^\circ$. Find x , EF , and angle F , naming the justification.

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01

An isosceles triangle has equal base angles $(6x + 12)^\circ$ and vertex angle 108° . Find x and classify its angles.

Angle sum: $2(6x+12)+(108)=180$, giving $x=4$. Base angles 36° ; vertex angle 108° . 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. $AB=6x+14$, $DE=68$, $BC=12$, and angle $C=50^\circ$. Find x , EF, and angle F, naming the justification.

Correspondence A / D, B / E, C / F. CPCTC gives $AB=DE$, so $x=9$; $EF=BC=12$; angle $F=\text{angle } C=50^\circ$.

03

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+14$, $DE=68$, $BC=18$, and angle $C=50^\circ$. Find x , EF, and angle F, naming the justification.

Correspondence A / D, B / E, C / F. CPCTC gives $AB=DE$, so $x=9$; $EF=BC=18$; angle $F=\text{angle } C=50^\circ$.

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04

An isosceles triangle has equal base angles $(5x + 10)^\circ$ and vertex angle 120° . Find x and classify its angles.

Angle sum: $2(5x+10)+(120)=180$, giving $x=4$. Base angles 30° ; vertex angle 120° . 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. $AB=5x+2$, $DE=67$, $BC=12$, and angle $C=37^\circ$. 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 $F=\text{angle } C=37^\circ$.

06

Triangle ABC is congruent to triangle DEF in that order. $AB=6x+5$, $DE=65$, $BC=6$, and angle $C=41^\circ$. Find x , EF , and angle F , naming the justification.

Correspondence A / D , B / E , C / F . CPCTC gives $AB=DE$, so $x=10$; $EF=BC=6$; angle $F=\text{angle } C=41^\circ$.