

Pre Calculus Section 6 3 Part II. Finding Area of a Triangle with SAS, AAS, or ASA and SSS

Lesson 185 | Precalculus | Law of cosines, area and bearings

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

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

A triangle has sides 9 and 10 enclosing 60° . Find the opposite side and area exactly.

02

A triangle has sides 13 and 10 enclosing 60° . Find the opposite side and area exactly.

03

A triangle has sides 11 and 4 enclosing 60° . Find the opposite side and area exactly.

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Name: _____ Date: _____ Show your reasoning.

04

A triangle has sides 2 and 11 enclosing 60° . Find the opposite side and area exactly.

05

A triangle has sides 5 and 7 enclosing 60° . Find the opposite side and area exactly.

06

A triangle has sides 14 and 5 enclosing 60° . Find the opposite side and area exactly.

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01

A triangle has sides 9 and 10 enclosing 60° . Find the opposite side and area exactly.

$$c^2 = 9^2 + 10^2 - 2(9)(10)\cos 60^\circ = 91. \quad c = \sqrt{91}. \quad \text{Area} = \frac{1}{2}(9)(10)\sin 60^\circ = 45/2\sqrt{3}.$$

02

A triangle has sides 13 and 10 enclosing 60° . Find the opposite side and area exactly.

$$c^2 = 13^2 + 10^2 - 2(13)(10)\cos 60^\circ = 139. \quad c = \sqrt{139}. \quad \text{Area} = \frac{1}{2}(13)(10)\sin 60^\circ = 65/2\sqrt{3}.$$

03

A triangle has sides 11 and 4 enclosing 60° . Find the opposite side and area exactly.

$$c^2 = 11^2 + 4^2 - 2(11)(4)\cos 60^\circ = 93. \quad c = \sqrt{93}. \quad \text{Area} = \frac{1}{2}(11)(4)\sin 60^\circ = 11\sqrt{3}.$$

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04

A triangle has sides 2 and 11 enclosing 60° . Find the opposite side and area exactly.

$$c^2 = 2^2 + 11^2 - 2(2)(11)\cos 60^\circ = 103. \quad c = \sqrt{103}. \quad \text{Area} = (1/2)(2)(11)\sin 60^\circ = 11/2\sqrt{3}.$$

05

A triangle has sides 5 and 7 enclosing 60° . Find the opposite side and area exactly.

$$c^2 = 5^2 + 7^2 - 2(5)(7)\cos 60^\circ = 39. \quad c = \sqrt{39}. \quad \text{Area} = (1/2)(5)(7)\sin 60^\circ = 35/4\sqrt{3}.$$

06

A triangle has sides 14 and 5 enclosing 60° . Find the opposite side and area exactly.

$$c^2 = 14^2 + 5^2 - 2(14)(5)\cos 60^\circ = 151. \quad c = \sqrt{151}. \quad \text{Area} = (1/2)(14)(5)\sin 60^\circ = 35/2\sqrt{3}.$$