

Pre Calculus 6 5 Law of Cosines

Lesson 192 | Precalculus | Law of cosines, area and bearings

<https://www.youtube.com/watch?v=Q-DGiswmD9E>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

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

02

A triangle has sides 2 and 5 enclosing 60° . Find the opposite side and area exactly.

03

A triangle has sides 14 and 2 enclosing 60° . Find the opposite side and area exactly.

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04

A triangle has sides 5 and 3 enclosing 60° . Find the opposite side and area exactly.

05

A triangle has sides 10 and 7 enclosing 60° . Find the opposite side and area exactly.

06

A triangle has sides 8 and 6 enclosing 60° . Find the opposite side and area exactly.

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01

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

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

02

A triangle has sides 2 and 5 enclosing 60° . Find the opposite side and area exactly.

$$c^2 = 2^2 + 5^2 - 2(2)(5)\cos 60^\circ = 19. \quad c = \sqrt{19}. \quad \text{Area} = (1/2)(2)(5)\sin 60^\circ = 5/2\sqrt{3}.$$

03

A triangle has sides 14 and 2 enclosing 60° . Find the opposite side and area exactly.

$$c^2 = 14^2 + 2^2 - 2(14)(2)\cos 60^\circ = 172. \quad c = \sqrt{172}. \quad \text{Area} = (1/2)(14)(2)\sin 60^\circ = 7\sqrt{3}.$$

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04

A triangle has sides 5 and 3 enclosing 60° . Find the opposite side and area exactly.

$$c^2 = 5^2 + 3^2 - 2(5)(3)\cos 60^\circ = 19. \quad c = \sqrt{19}. \quad \text{Area} = \frac{1}{2}(5)(3)\sin 60^\circ = \frac{15}{4}\sqrt{3}.$$

05

A triangle has sides 10 and 7 enclosing 60° . Find the opposite side and area exactly.

$$c^2 = 10^2 + 7^2 - 2(10)(7)\cos 60^\circ = 79. \quad c = \sqrt{79}. \quad \text{Area} = \frac{1}{2}(10)(7)\sin 60^\circ = \frac{35}{2}\sqrt{3}.$$

06

A triangle has sides 8 and 6 enclosing 60° . Find the opposite side and area exactly.

$$c^2 = 8^2 + 6^2 - 2(8)(6)\cos 60^\circ = 52. \quad c = \sqrt{52}. \quad \text{Area} = \frac{1}{2}(8)(6)\sin 60^\circ = 12\sqrt{3}.$$