Watch. Practice. Understand. | Lesson 235

The Secret of a Bearing Angle (Pre Calculus 6 3, 6 4 and 6 5 Solving Triangles)

Watch the matching video: https://www.youtube.com/watch?v=QD5v0IHf3Vg

Practice focus: Law of cosines, area and bearings

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Two sides are 5 and 7 with included angle 60°. Find the third side.

02 Find the angle opposite side 13 in a triangle with sides 5, 12, 13.

03 Find the area with sides 8 and 10 and included angle 30°.

04 A ship travels 10 km on bearing 030° (clockwise from north). Find east and north displacement.

Worked answers | Lesson 235

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01 Two sides are 5 and 7 with included angle 60°. Find the third side.

$c^2 = 25 + 49 - 2(5)(7)\cos 60° = 39$. Thus $c = \sqrt{39}$.

02 Find the angle opposite side 13 in a triangle with sides 5, 12, 13.

$\cos C = (25 + 144 - 169)/(2 \cdot 5 \cdot 12) = 0$, so $C = 90°$.

03 Find the area with sides 8 and 10 and included angle 30°.

$A = (1/2)ab \sin C = (1/2)(8)(10)(1/2) = 20$.

04 A ship travels 10 km on bearing 030° (clockwise from north). Find east and north displacement.

East $= 10\sin 30° = 5$ km; north $= 10\cos 30° = 5\sqrt{3}$ km.