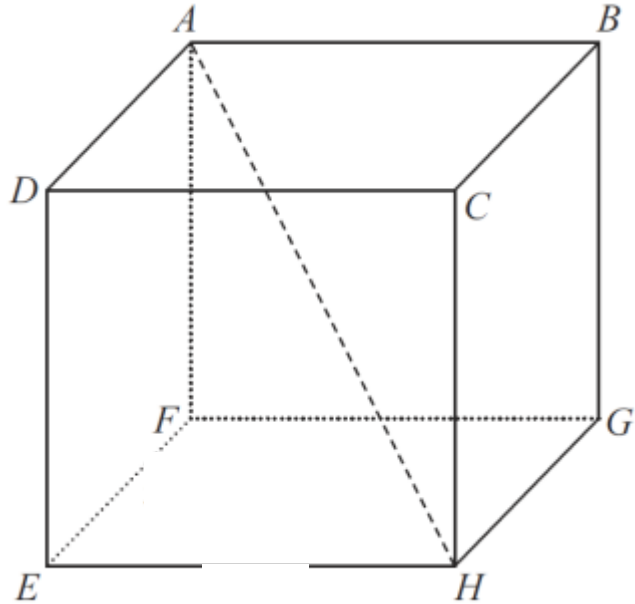


Trigonometry (3D)

[CONTENTS](#)

Worked example

A cube ABCDEFGH has side lengths of 10 cm.
Find the angle between the diagonal AH and the base EFGH



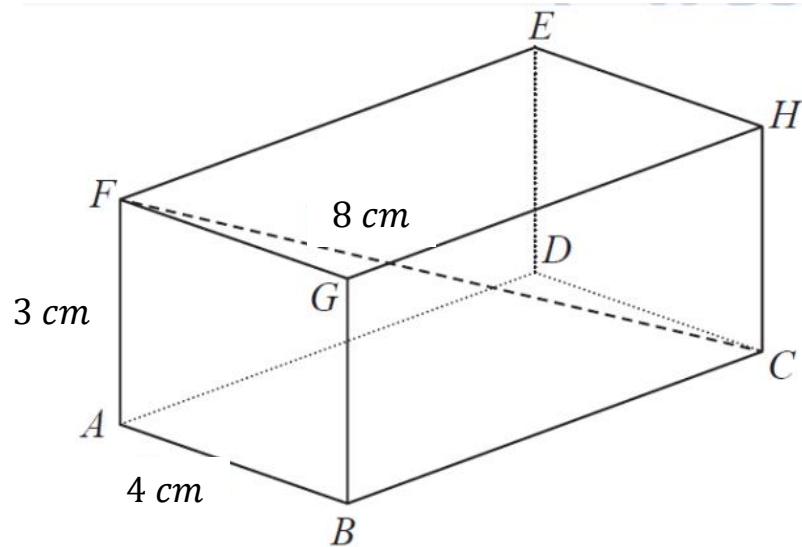
Your turn

A cube ABCDEFGH has side lengths of 5 cm.
Find the angle between the diagonal AH and the base EFGH

35.26° (2 dp)

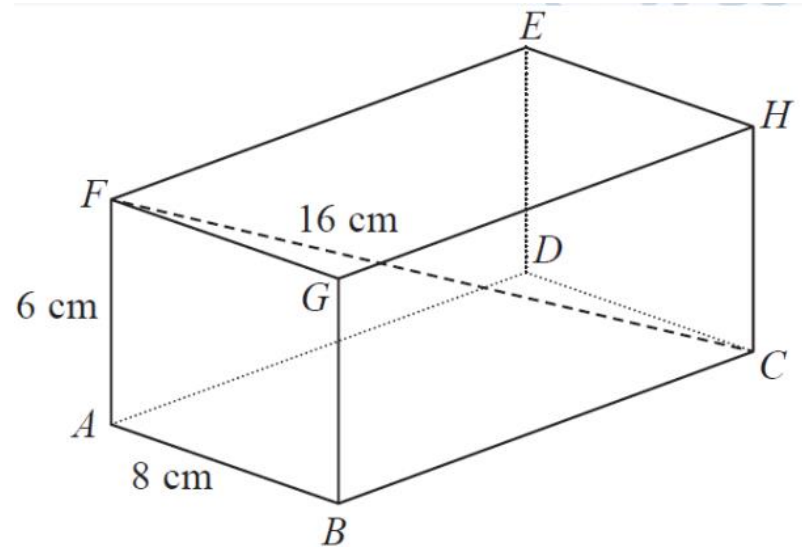
Worked example

Calculate the angle between the line FC and the plane $ABGF$



Your turn

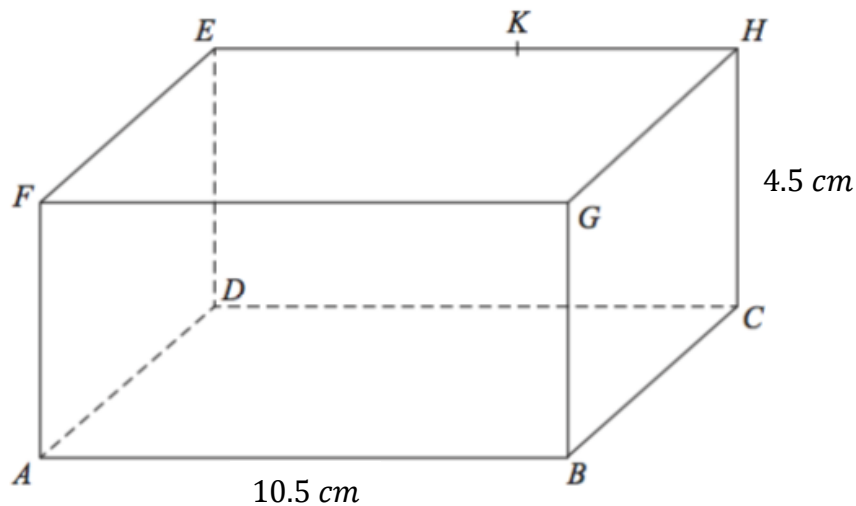
Calculate the angle between the line FC and the plane $ABGF$



51.32° (2 dp)

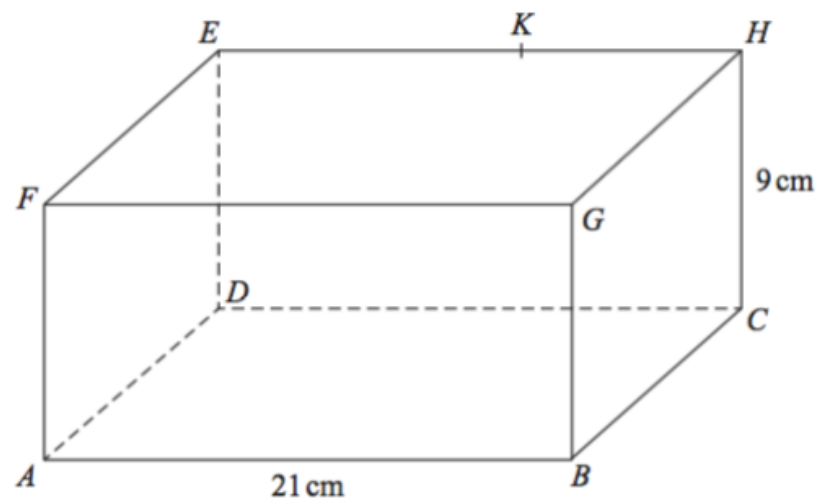
Worked example

K is the point on EH such that angle $AKB = 68^\circ$ and $BK = 8.25 \text{ cm}$.
Calculate the size of angle BAK



Your turn

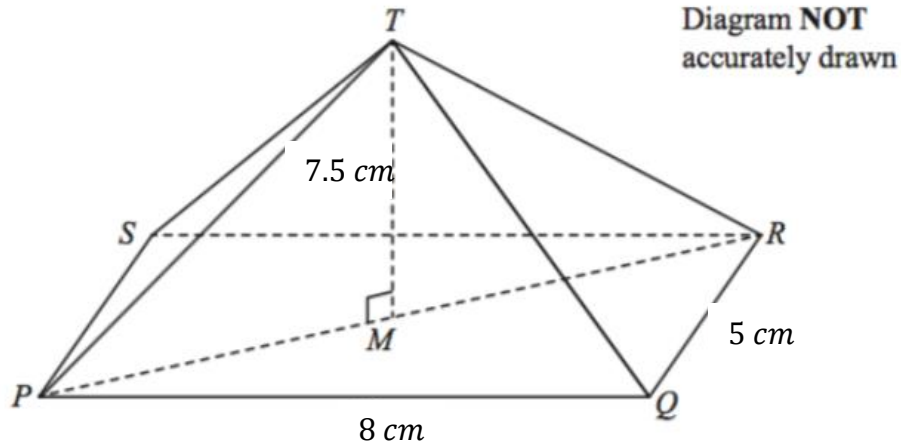
K is the point on EH such that angle $AKB = 68^\circ$ and $BK = 16.5 \text{ cm}$.
Calculate the size of angle BAK



33.1° (1 dp)

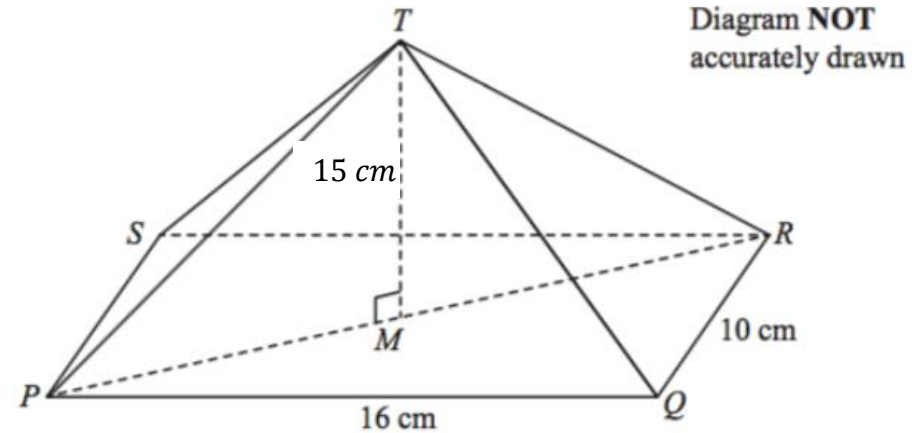
Worked example

M is the midpoint of PR .
Calculate the size of the angle
between TP and the base $PQRS$



Your turn

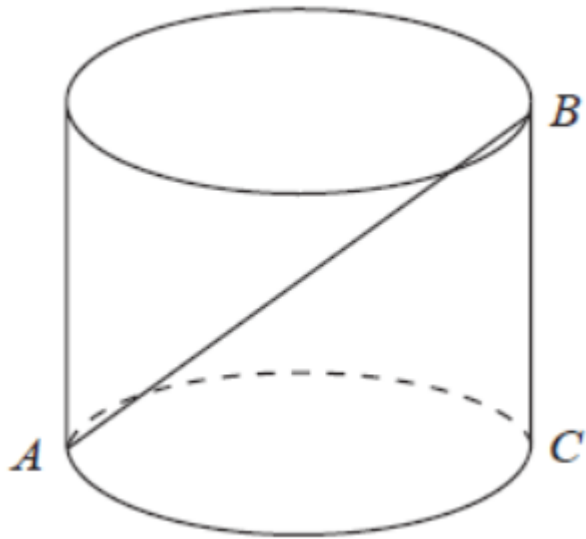
M is the midpoint of PR .
Calculate the size of the angle
between TP and the base $PQRS$



57.8° (1 dp)

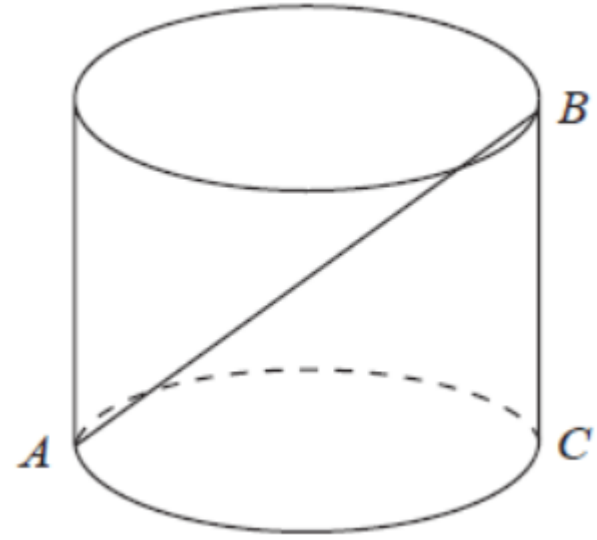
Worked example

There is a rod in a cylindrical tin.
AC is a diameter of the base.
BC is vertical.
The radius of the base is 2.5 cm .
The volume of the tin is 589 cm^3 .
Find the angle between the rod and the base of the tin.



Your turn

There is a rod in a cylindrical tin.
AC is a diameter of the base.
BC is vertical.
The radius of the base is 2.5 cm .
The volume of the tin is 589 cm^3 .
Find the angle between the rod and the base of the tin.



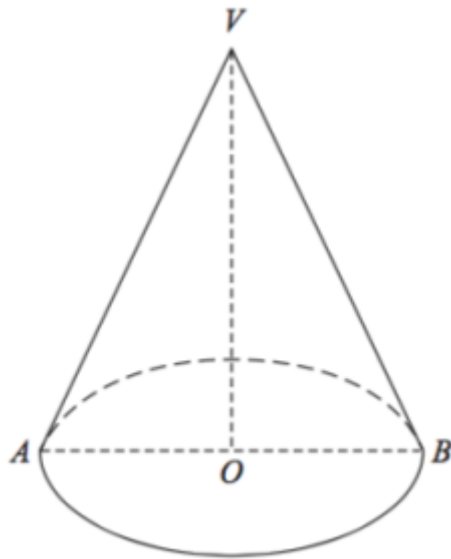
56°

Worked example

The diagram shows a solid cone.
The base of the cone is a horizontal circle, centre O , with radius 9 cm .

The curved surface area of the cone is 260 cm^2

Calculate the size of angle AVB

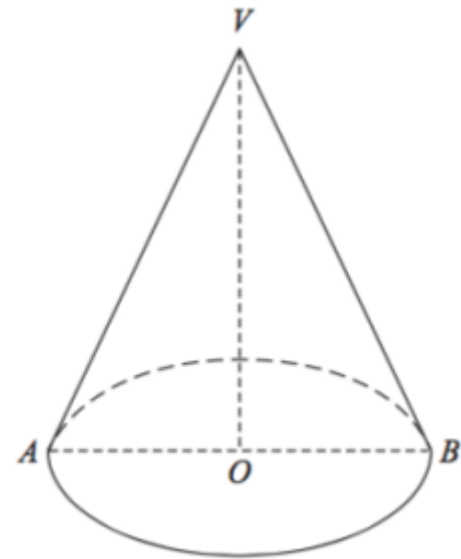


Your turn

The diagram shows a solid cone.
The base of the cone is a horizontal circle, centre O , with radius 4.5 cm .

The curved surface area of the cone is 130 cm^2

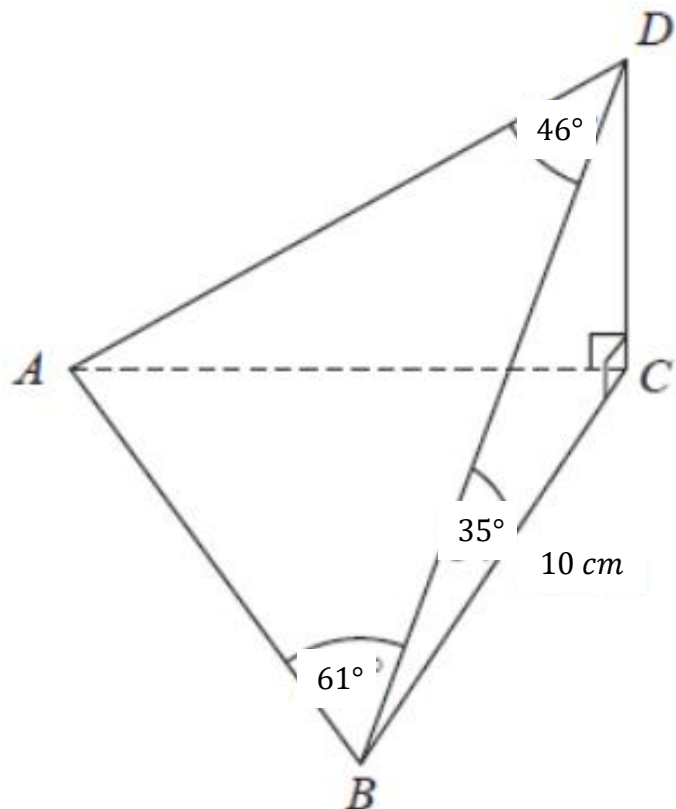
Calculate the size of angle AVB



59.60° (2 dp)

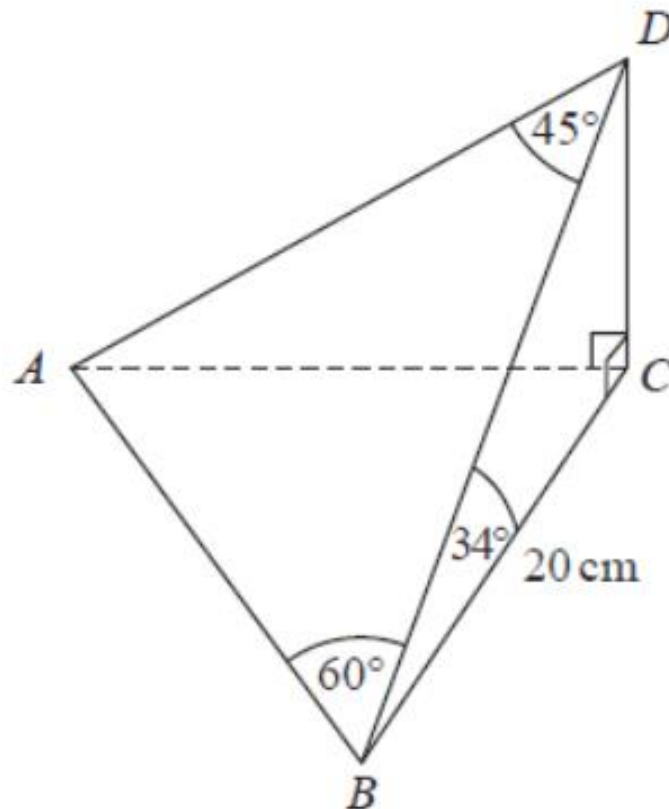
Worked example

Calculate the size of the angle between the line AD and the plane ABC .



Your turn

Calculate the size of the angle between the line AD and the plane ABC .

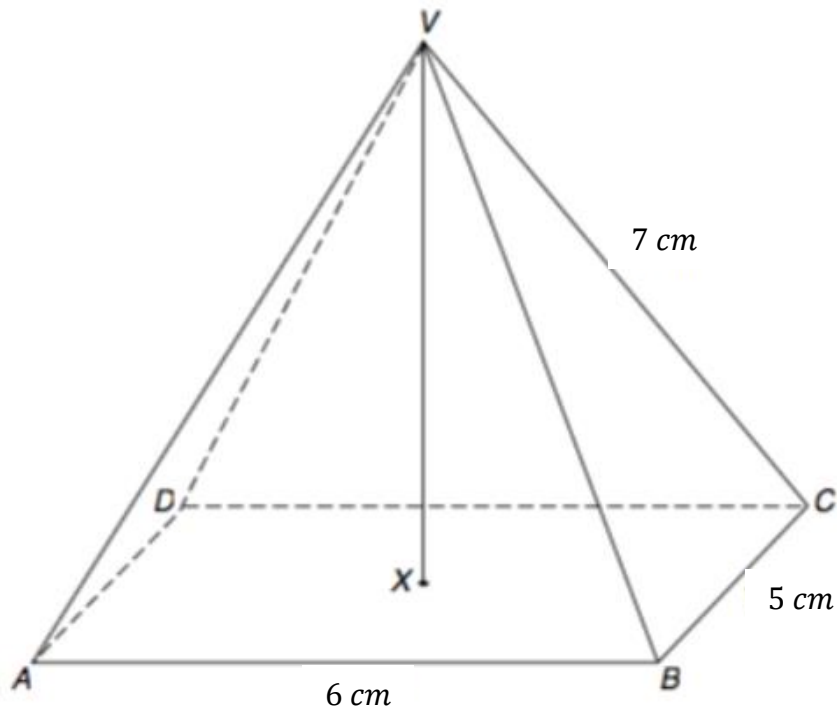


$38.5 - 38.6^\circ$ (1 dp)

Worked example

VABCD is a rectangular based pyramid.

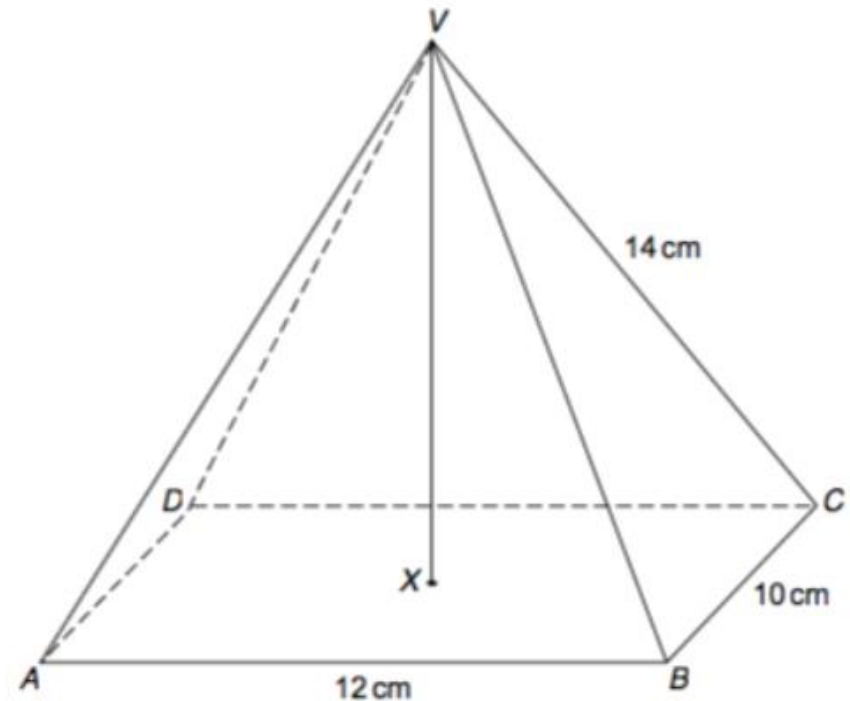
Calculate the angle between VC and the plane ABCD



Your turn

VABCD is a rectangular based pyramid.

Calculate the angle between VC and the plane ABCD



56.1° (1 dp)