



National 5 Maths 3D Coordinates

SQA past paper and specimen paper
questions and answers by topic

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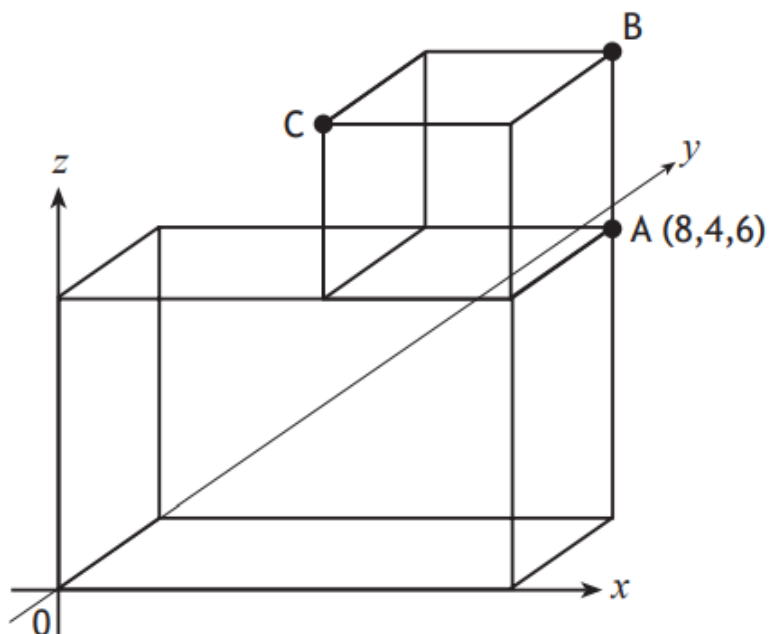
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The diagram shows a cube placed on top of a cuboid, relative to the coordinate axes.



A is the point $(8, 4, 6)$.

Write down the coordinates of B and C.

2

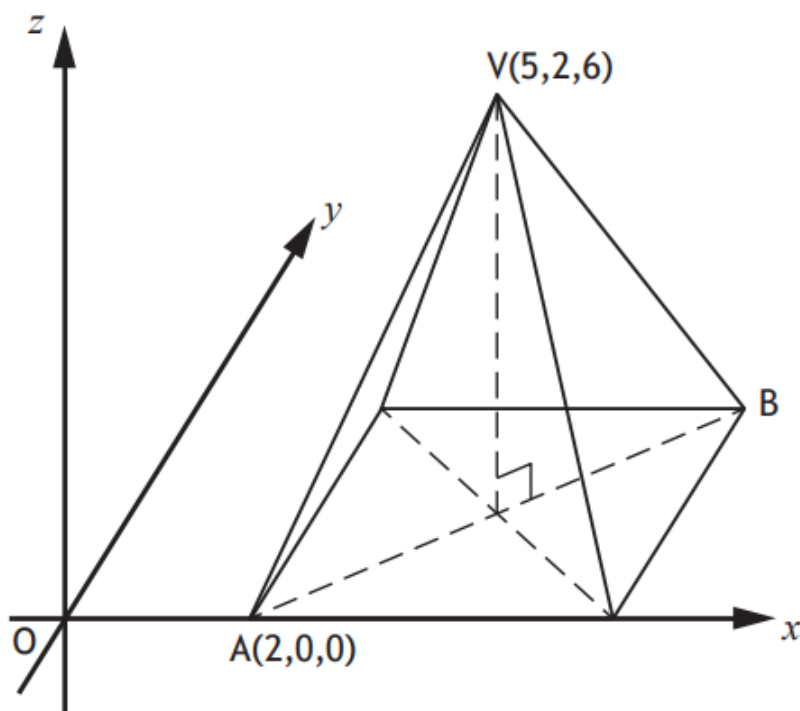
Answer:

B $(8, 4, 10)$

C $(4, 0, 10)$



The diagram shows a rectangular based pyramid, relative to the coordinate axes.



- A is the point $(2,0,0)$.
- V is the point $(5,2,6)$.

(a) Write down the coordinates of B.

1

(b) Calculate the length of edge AV of the pyramid.

3

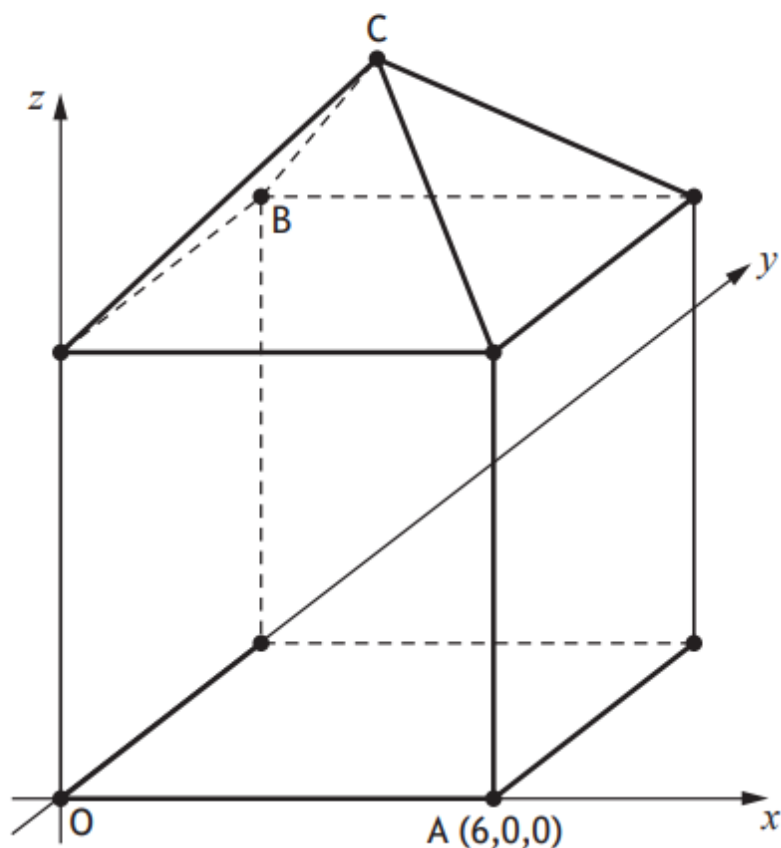
Answers:

(a) $B(8, 4, 0)$

(b) 7



The diagram shows a square-based pyramid placed on top of a cube, relative to the coordinate axes.



The height of the pyramid is half of the height of the cube.

A is the point $(6,0,0)$.

The point C is directly above the centre of the base.

Write down the coordinates of B and C.

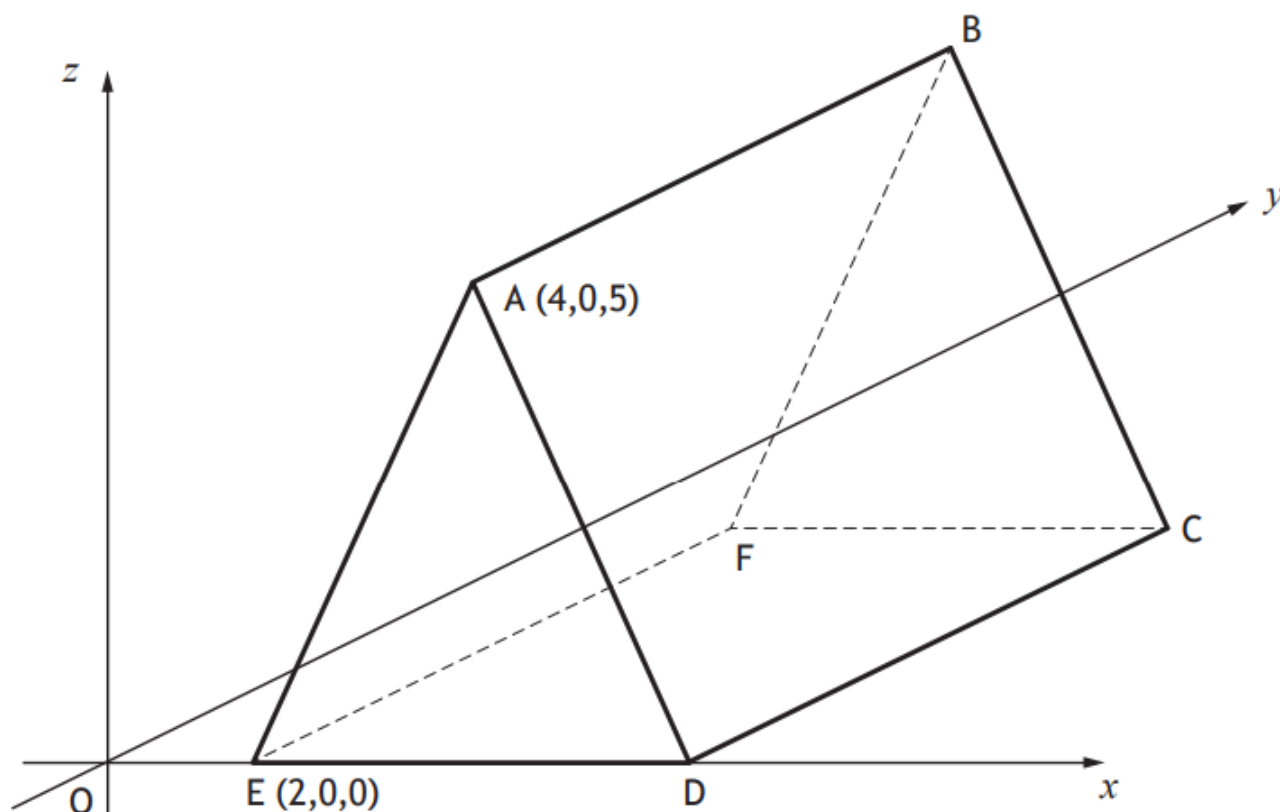
2

Answer:

B $(0, 6, 6)$

C $(3, 3, 9)$

The diagram shows a triangular prism, $ABCDEF$, relative to the coordinate axes.



- $AD = AE$.
- $DC = 8$ units.
- Edges EF , DC and AB are parallel to the y -axis.

Write down the coordinates of B and C .

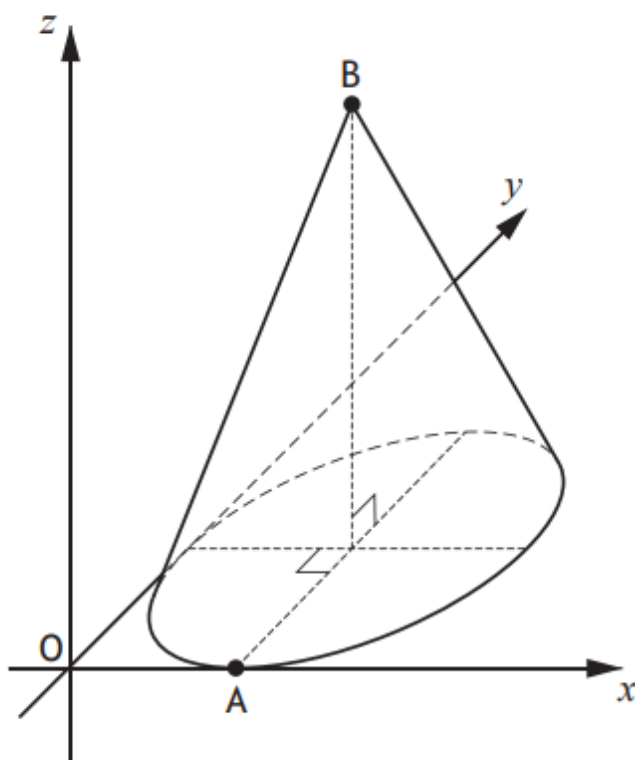
2

Answer:

$B(4, 8, 5)$

$C(6, 8, 0)$

The diagram shows a cone with diameter 6 units and height 8 units.



- The x -axis and the y -axis are tangents to the base
- A is the point of contact between the base and the x -axis
- B is directly above the centre of the base

Write down the coordinates of A and B.

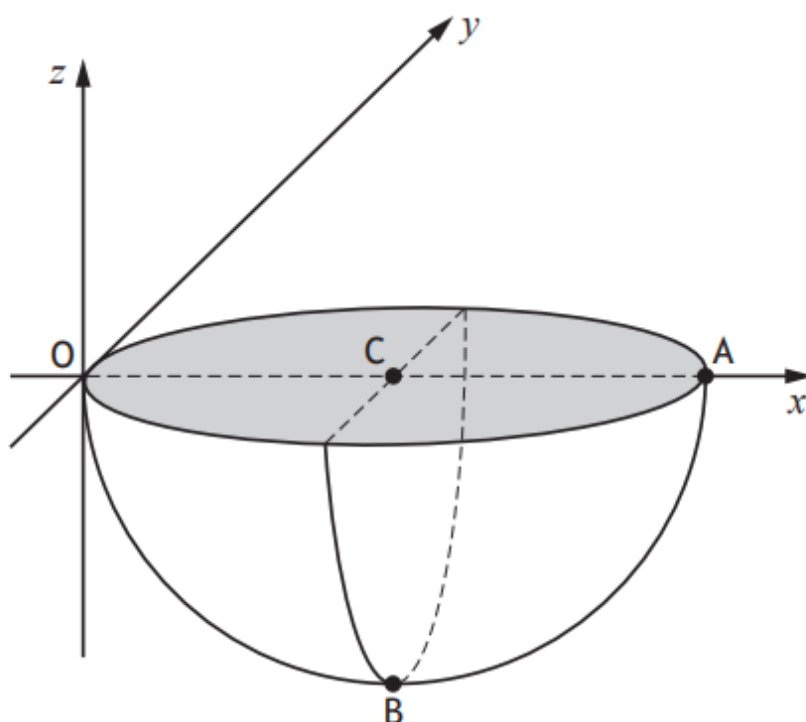
2

Answer:

A (3, 0, 0)

B (3, 3, 8)

The diagram shows a hemisphere relative to the coordinate axes.



- A is the point $(6, 0, 0)$
- C is the midpoint of diameter OA
- B is vertically below C

(a) State the coordinates of B. 1

(b) Calculate the volume of the hemisphere.

Give your answer in its simplest form in terms of π . 2

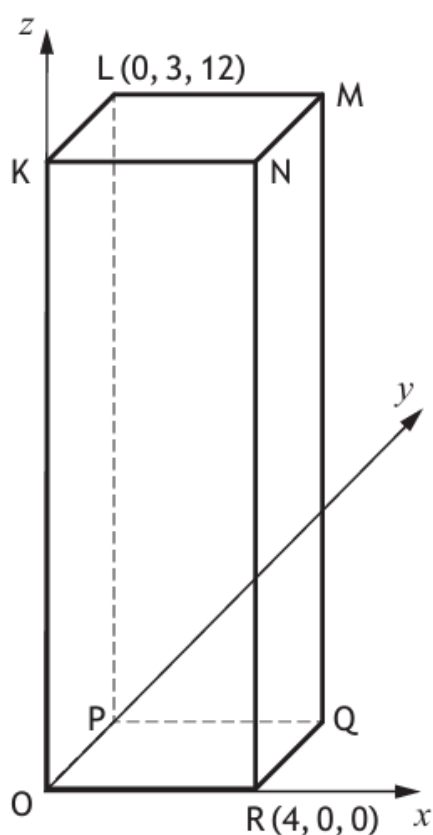
Answers:

(a) $(3, 0, -3)$

(b) 18π

National 5 Maths
SQA 2025 Paper 2
Question 8

The diagram shows a cuboid, KLMNOPQR, relative to the coordinate axes.



L has coordinates $(0, 3, 12)$.

R has coordinates $(4, 0, 0)$.

- (a) Write down the coordinates of M. 1
- (b) Calculate the length of the space diagonal OM. 3

Answers:

- (a) $(4, 3, 12)$
(b) 13