

What is problem solving?

“ **Problem solving is knowing what to do....
... when you don't know what to do.** ”

- **25% of the marks on Foundation**
- **30% of the marks on Higher**

What is problem solving?

 **Understand the question**

 **Ask your own questions**

 **Connect ideas**

 **Change direction**

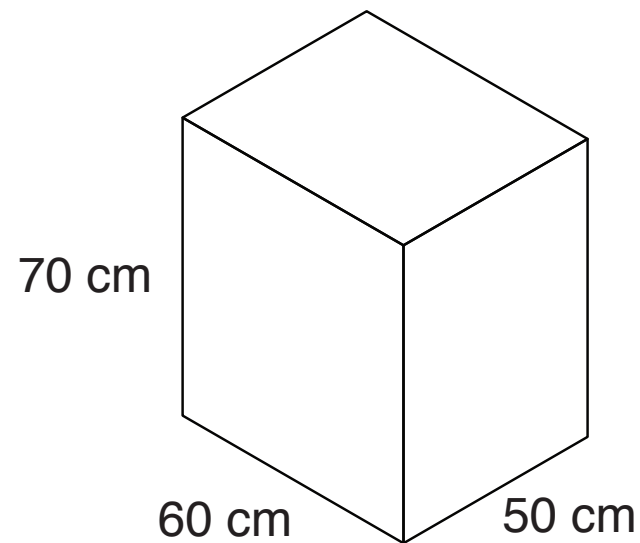
Problem Solving Solved



Understand the question



The diagram shows a cuboid.



1

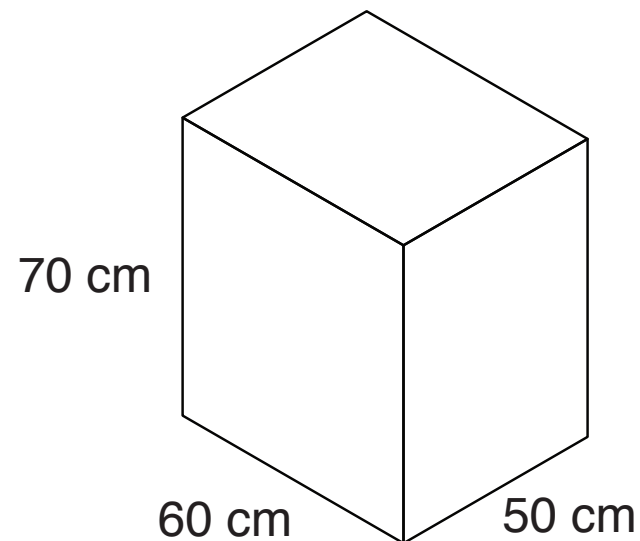
What questions might go with the diagram?
Just write questions, don't answer them yet.





Understand the question

The diagram shows a cuboid.



- **What is the volume?**
- **What is the area of the base?**
- **What is the surface area?**
- **Draw an accurate net.**
- **Make an isometric drawing.**

Did you have any other questions?

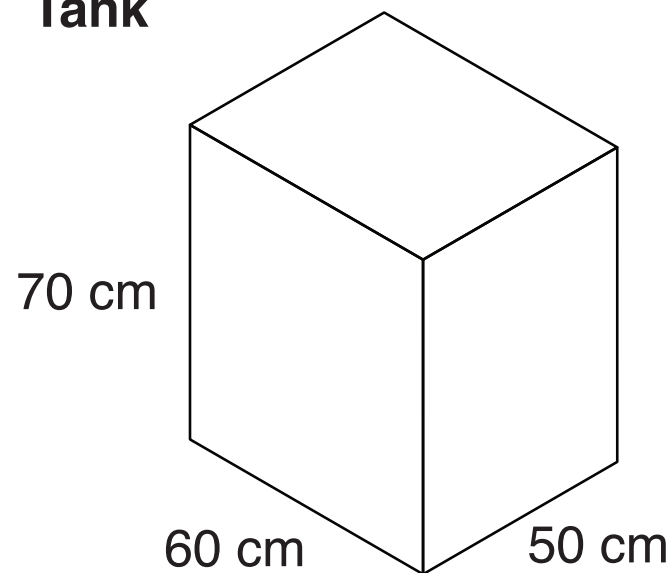


Understand the question

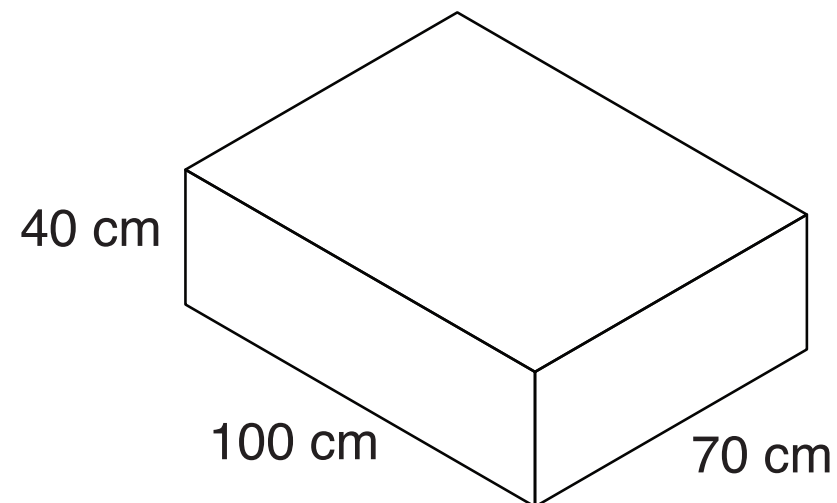
The tank is full of oil from a car.
The container is empty.



Tank



Container



2

Draw a sketch to show the information.

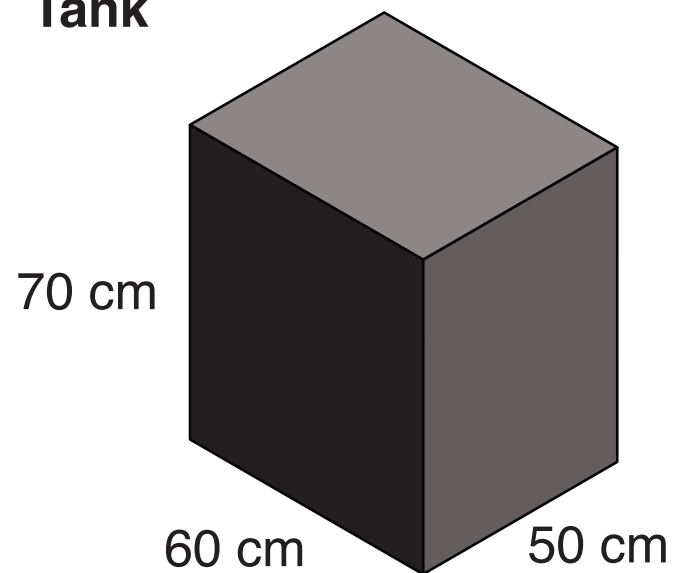




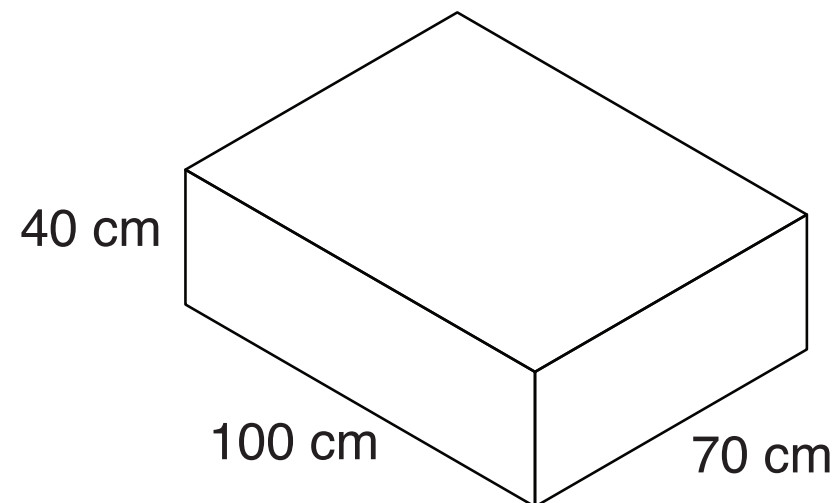
Understand the question

The tank is full of oil from a car.
The container is empty.

Tank



Container



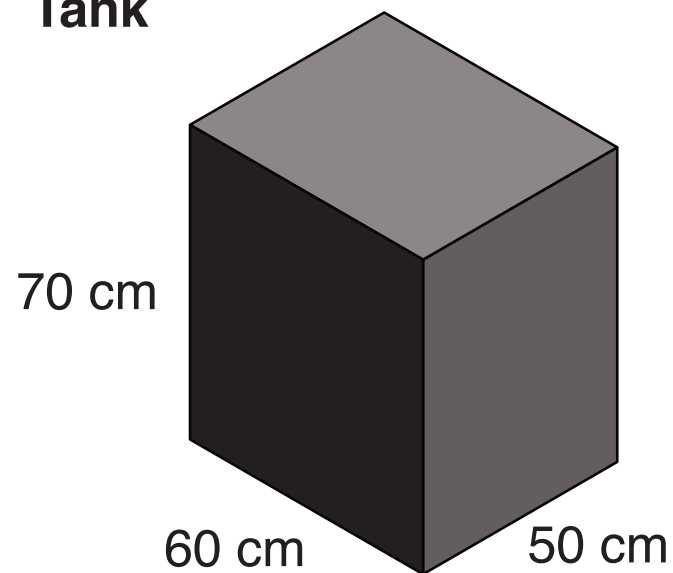


Understand the question

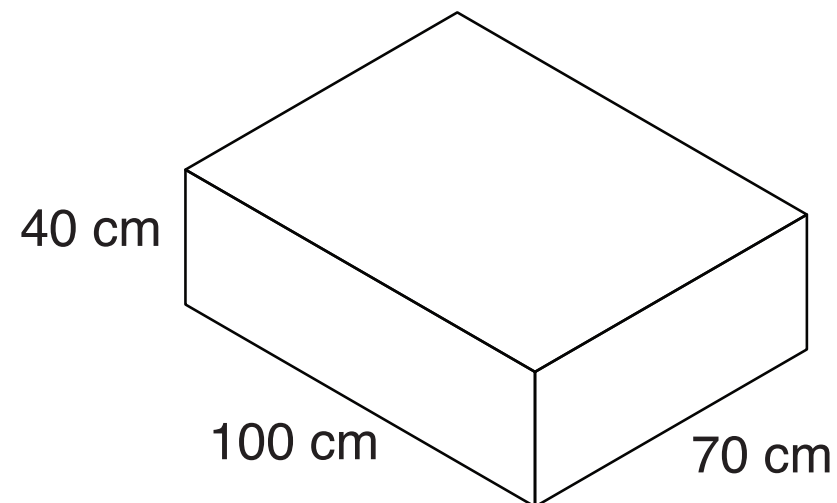


The oil from the tank is put into the container.

Tank



Container



3

Draw a sketch to show the information.

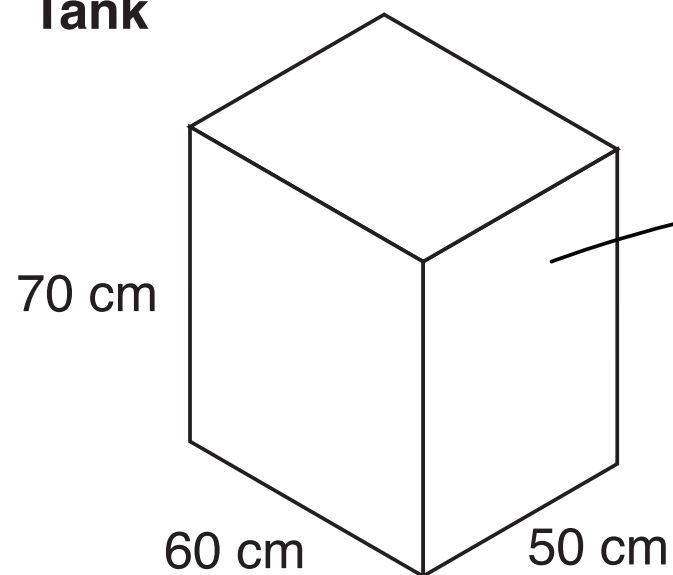




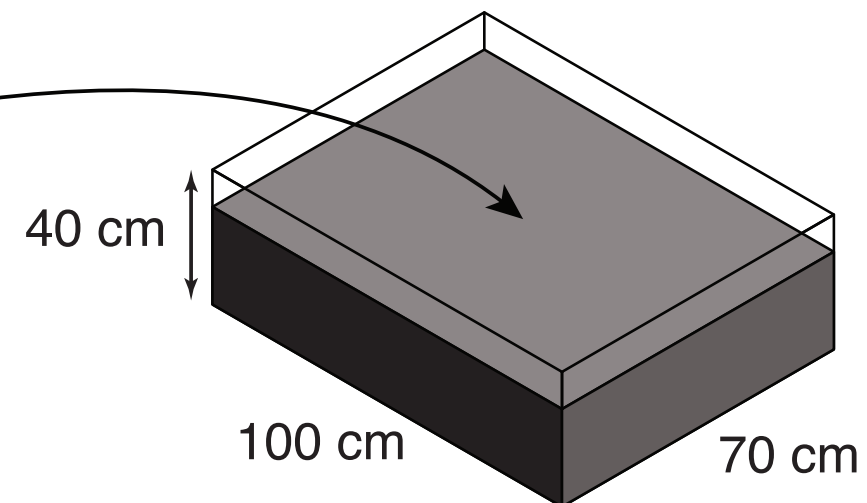
Understand the question

The oil from the tank is put into the container.

Tank



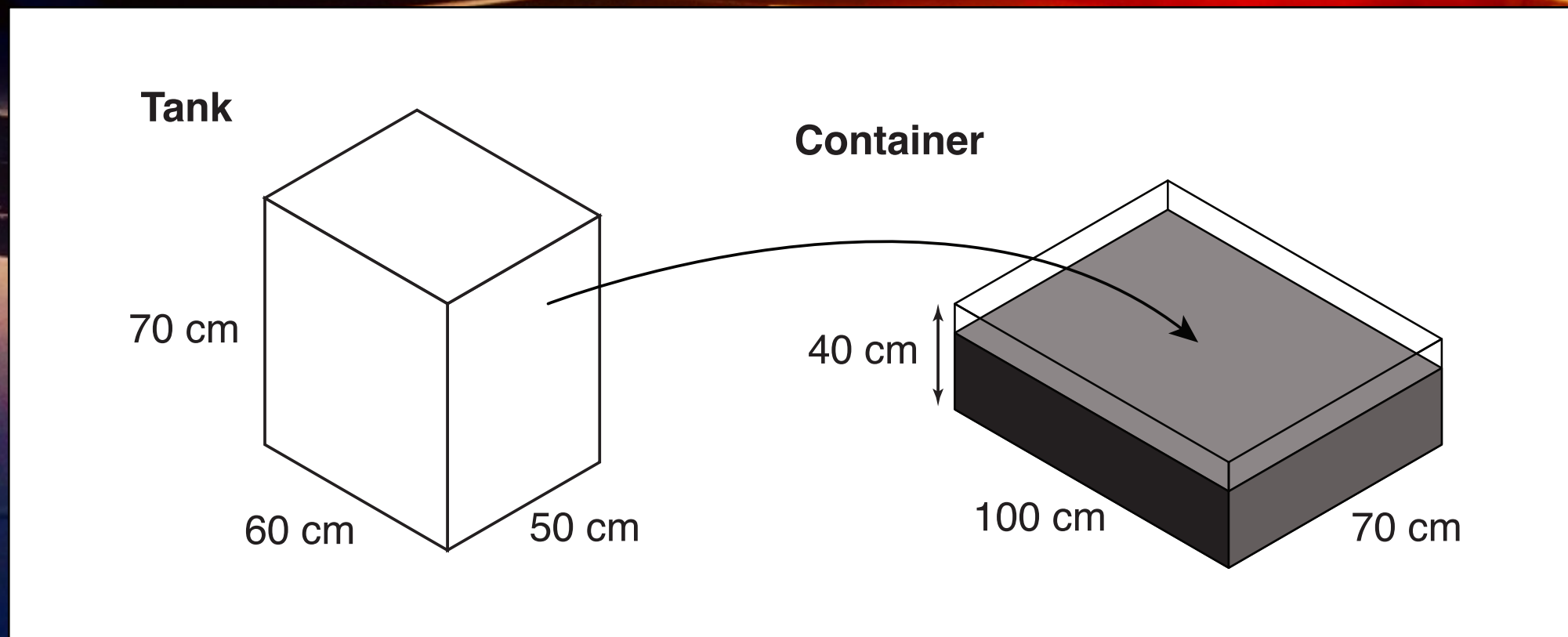
Container



? Ask your own questions



What information is needed to work out the height of the oil in the container?

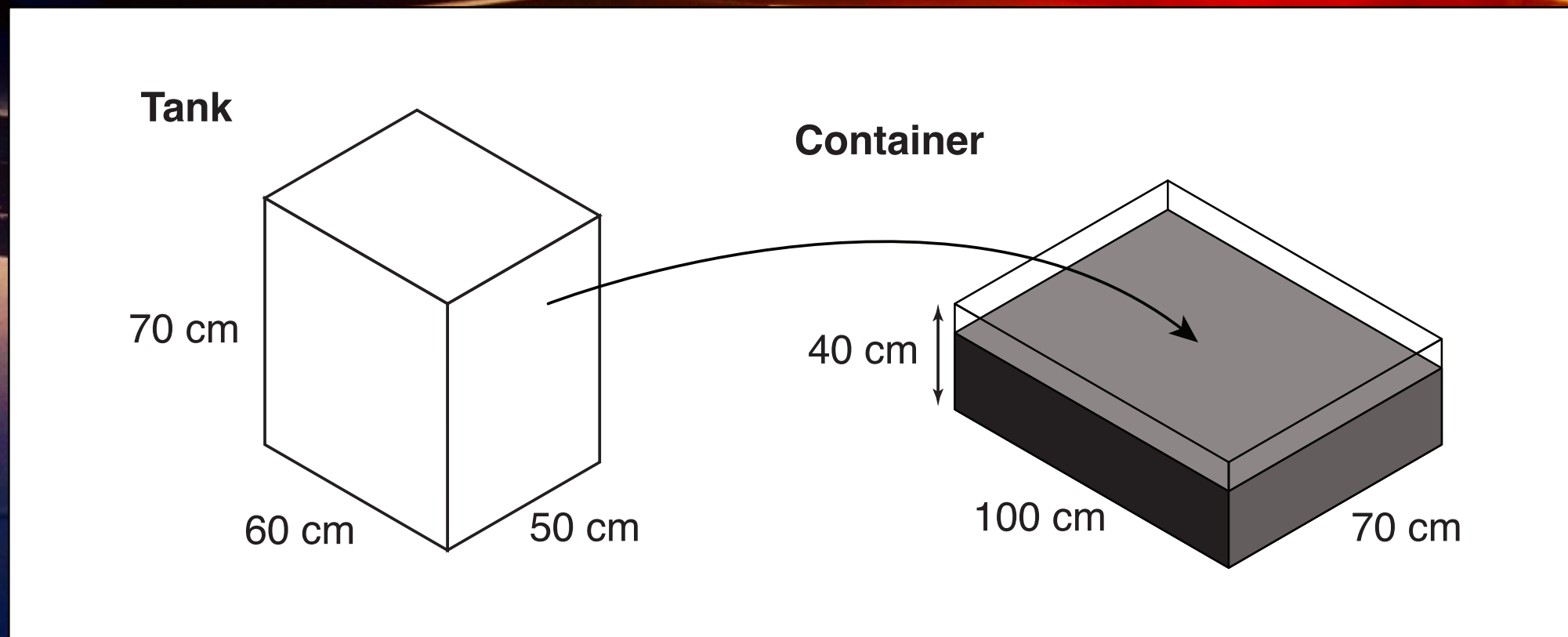


4 Write and answer a question about the tank.
Write and answer a question about the container.
Answer your questions.



? Ask your own questions

What information is needed to work out the height of the oil in the container?



Volume of oil: $210\,000\text{ cm}^3$
Area of the base: $7\,000\text{ cm}^2$

Problem Solving Solved

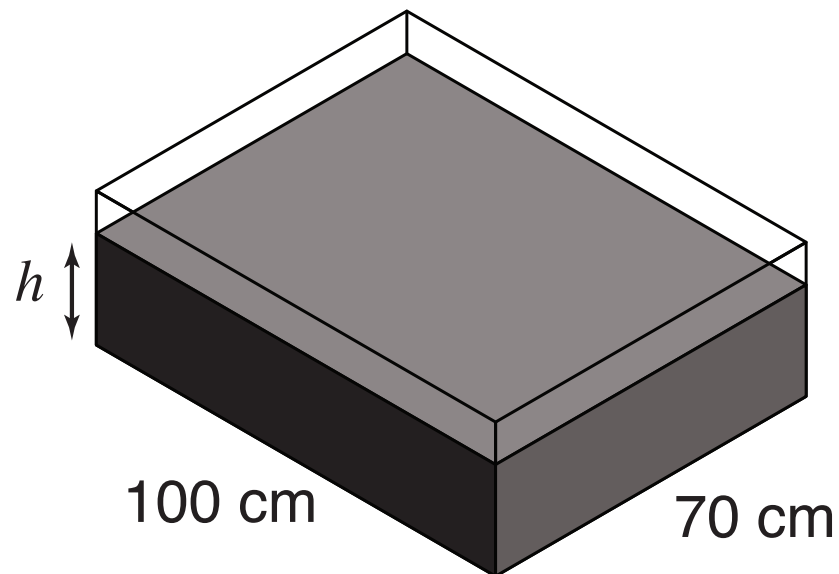


Connect ideas



5 Work out the height of oil in the container.

Container



Volume of oil = $210\,000\text{ cm}^3$

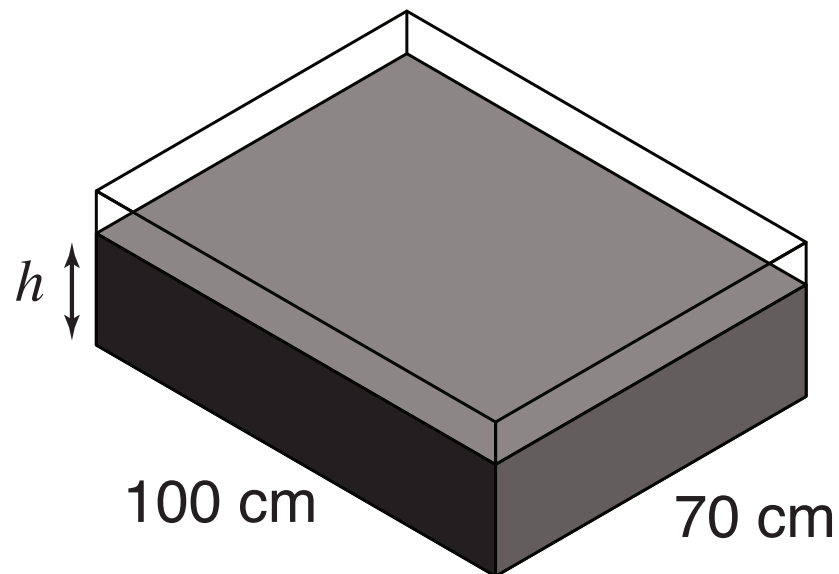
Area of base = $70\,000\text{ cm}^2$



Connect ideas

5 Work out the height of oil in the container.

Container



Volume of oil = 210 000 cm³

Area of base = 70 000 cm²

Height of oil: 210 000 ÷ 7 000 = 30 cm

What is problem solving?



Change direction

If things don't work out...

“

**Don't do the same thing over and over...
... expecting to get different results.**

Einstein

”

- **Learn from what you have done**
- **Try something different**