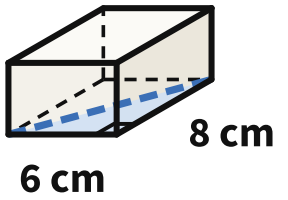
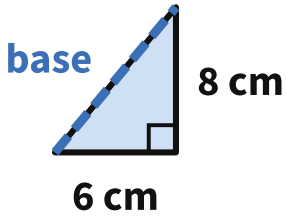
# Pythagoras in 3D

**1**

Find the length of the diagonal of the base of the cuboid.



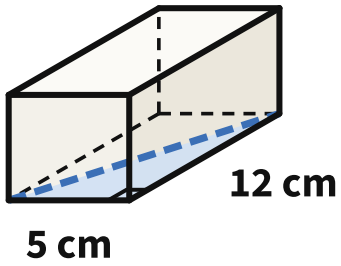

$\text{base}^2 = 6^2 + 8^2$

$\text{base}^2 = 100$

$\text{base} = \sqrt{\quad} = \quad$ cm

**2**

Find the length of the diagonal of the base of the cuboid.



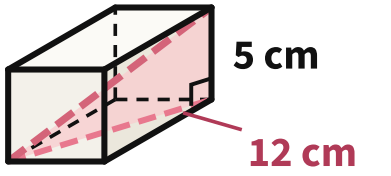

$\text{base}^2 = 5^2 + 12^2$

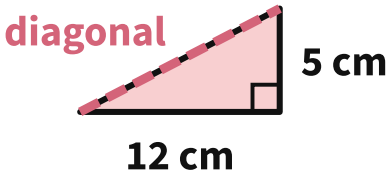
$\text{base}^2 = \quad$

$\text{base} = \sqrt{\quad} = \quad$ cm

**3**

The diagonal of the base is 12 cm. Find the length of the diagonal of the cuboid.



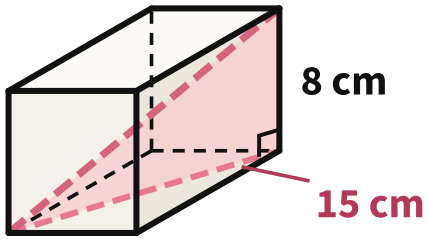

$\text{diagonal}^2 = 12^2 + 5^2$

$\text{diagonal}^2 = \quad$

$\text{diagonal} = \sqrt{\quad} = \quad$ cm

**4**

The diagonal of the base is 15 cm. Find the length of the diagonal of the cuboid.




$\text{diagonal}^2 = \quad^2 + \quad^2$

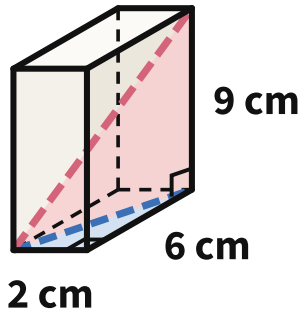
$\text{diagonal}^2 = \quad$

$\text{diagonal} = \sqrt{\quad} = \quad$ cm

# Pythagoras in 3D

**5**

Find the length of the diagonal of the cuboid.




base$^2$ = 2$^2$ + 6$^2$

base$^2$ = 40

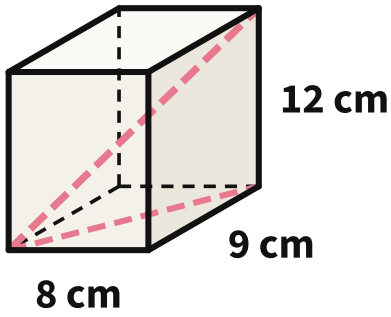
diagonal$^2$ = 40 + 9$^2$

diagonal$^2$ = ☐

diagonal = √☐ = ☐ cm

**6**

Find the length of the diagonal of the cuboid.




base$^2$ = 8$^2$ + 9$^2$

base$^2$ = 145

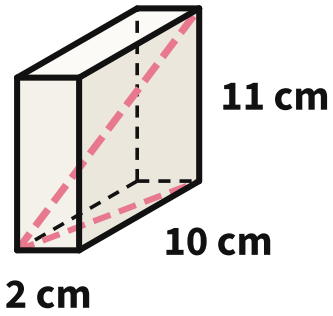
diagonal$^2$ = ☐ + ☐$^2$

diagonal$^2$ = ☐

diagonal = √☐ = ☐ cm

**7**

Find the length of the diagonal of the cuboid.




base$^2$ = 2$^2$ + 10$^2$

base$^2$ = ☐

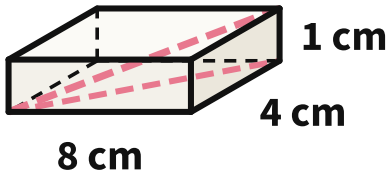
diagonal$^2$ = ☐ + ☐$^2$

diagonal$^2$ = ☐

diagonal = √☐ = ☐ cm

**8**

Find the length of the diagonal of the cuboid.




base$^2$ = ☐$^2$ + ☐$^2$

base$^2$ = ☐

diagonal$^2$ = ☐ + ☐$^2$

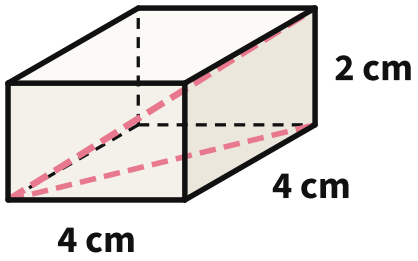
diagonal$^2$ = ☐

diagonal = √☐ = ☐ cm

# Pythagoras in 3D *further practice*

**9**

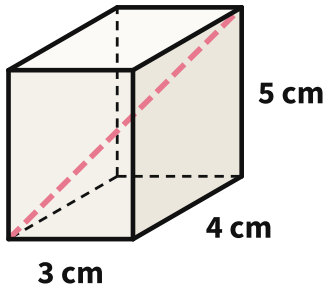
Find the length of the diagonal of the cuboid.




Answer _____

**10**

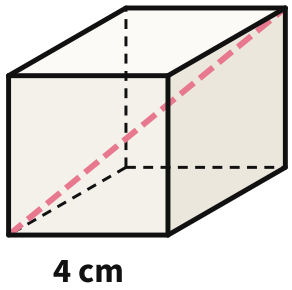
Find the length of the diagonal of the cuboid to 1 decimal place.




Answer _____

**11**

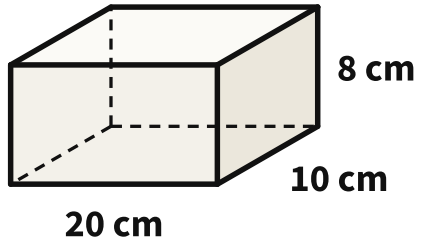
A cube has edges of 4 cm.
Find the length of the diagonal of the cube to 1 decimal place.




Answer _____

**12**

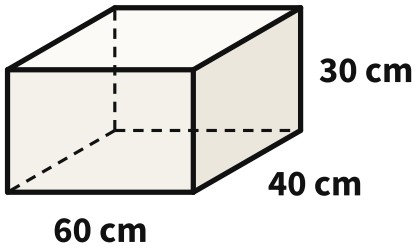
A pencil case is a cuboid 20 cm by 10 cm by 8 cm. Will a 22 cm pencil fit inside it? Show how you know.




Answer _____

**13**

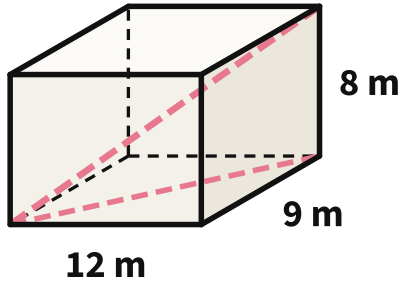
A storage box is 60 cm by 40 cm by 30 cm. Will an 80 cm umbrella fit inside it? Show how you know.




Answer _____

**14**

A room is 12 m long, 9 m wide and 8 m high. Find the length of (a) the diagonal of the floor, (b) the diagonal of the room.




Answer _____

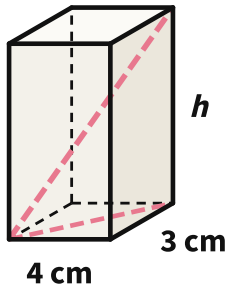
**15**

Sam says the diagonal of a cuboid 3 cm by 4 cm by 12 cm is 3 + 4 + 12 = 19 cm. Explain Sam's mistake and find the diagonal.

Answer _____

**16**

A cuboid has a base 4 cm by 3 cm. The diagonal of the cuboid is 13 cm. Find the height of the cuboid.




Answer _____