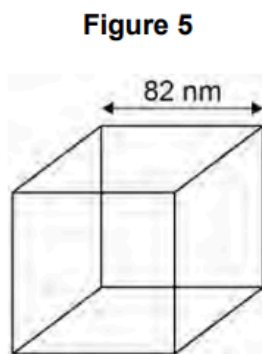


(Nanoparticles and their applications)

Q1. (2019)

Zinc oxide can be produced as nanoparticles and as fine particles.

A nanoparticle of zinc oxide is a cube of side 82 nm

Figure 5 represents a nanoparticle of zinc oxide.

Calculate the surface area of a nanoparticle of zinc oxide.

Give your answer in standard form.

[3 marks]

Surface area = _____ nm²

Q2. (2019)

Some suncreams contain zinc oxide as nanoparticles or as fine particles.

Suggest **one** reason why it costs less to use nanoparticles rather than fine particles in suncreams.

[1 mark]

Q3. (2023)

This question is about titanium dioxide (TiO_2).

Self-cleaning windows are coated with a layer of nanoparticles of titanium dioxide.

Titanium dioxide:

- helps sunlight break down dirt particles
- attracts water, so dirt is washed away by rain.

Nanoparticles of titanium dioxide are used instead of fine particles of titanium dioxide for coating self-cleaning windows.

Suggest **two** reasons why.

[2 marks]

1 _____

2 _____
