GCSE FOUNDATION · REVISION MAT 3

Comparing lengths, areas and volumes

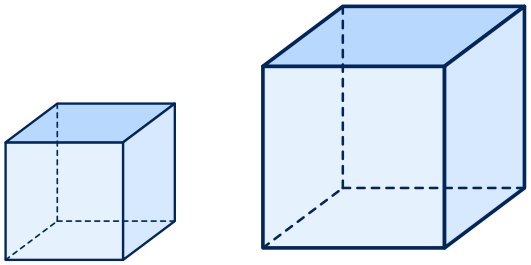
1 Square A has sides 4 cm.
Square B has sides 12 cm.

Write in its simplest form

(a) the ratio of their perimeters

(b) the ratio of their areas

2 Cube A has edges 3 cm.
Cube B has edges 6 cm.



Write the ratio of their volumes in its simplest form.

3 Dan says,

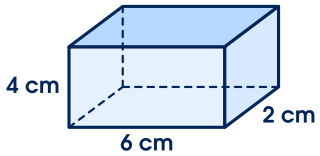
"If you multiply all the sides of a square by 2, its area is multiplied by 2."

Explain why Dan is wrong.

4 Rectangle A is 3 cm by 4 cm.
Rectangle B is 6 cm by 8 cm.

Show that the ratio of their areas is 1 : 4

5 A small box is 6 cm by 4 cm by 2 cm.



A large box has every length 4 times as long.

(a) Work out the volume of the large box.

(b) How many times bigger is its volume?

6 A rectangle is 11 cm by 3 cm.

A square has the same perimeter as the rectangle.

Write the ratio area of rectangle : area of square in its simplest form.

ANSWERS · REVISION MAT 3

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1 (a) 16 : 48 = **1 : 3**

(b) 16 : 144 = **1 : 9**

2 27 : 216 = **1 : 8**

3 Area = side × side, so both lengths are multiplied by 2.

Area is multiplied by 2 × 2 = **4**

4 12 : 48 = **1 : 4** ✓

5 (a) 24 × 16 × 8 = **3 072 cm^3**

(b) 4^3 = **64** times

6 Perimeter = 28 cm, so the square has sides 7 cm

Areas: 33 : 49

= **33 : 49**

Mr&Mrs MATHS