

7th August

Higher Plus 5-a-day



Corbettmaths

A and B are similar cuboids

volume of A: volume of B = 8 : 1000

sides 2:40

Work out

1:5

surface area of B: surface area of A

$$B : A$$

$$25 : 1$$

How many even numbers greater than 40000 can be created using the digits

1 2 5 8 9

using each digit once?

ends in $\boxed{2}$

$$3 \times 3 \times 2 \times 1 \times 1 = 18$$

ends in $\boxed{8}$

$$2 \times 3 \times 2 \times 1 \times 1 = 12$$

$$\boxed{30}$$
Find the coordinates where the line $x + y = 3$ and the curve $x^2 + 3y = 27$ intersect

$$y = 3 - x$$

$$x^2 + 3(3 - x) = 27$$

$$x^2 + 9 - 3x = 27$$

$$x^2 - 3x - 18 = 0$$

$$(x - 6)(x + 3) = 0$$

$$x = 6 \quad x = -3$$

$$y = -3 \quad y = 6$$

$$(6, -3) \text{ and } (-3, 6)$$

$$\frac{61}{330}$$

$$0.1\dot{7}\dot{8}$$

$$3^{-2}$$

$$\frac{19}{110}$$

$$\frac{59}{330}$$

$$\frac{1}{9}$$

Arrange in order from smallest to largest

$$\frac{183}{990}$$

$$\frac{177}{990}$$

$$\frac{110}{990}$$

$$\frac{171}{990}$$

$$3^{-2}, \frac{19}{110}, 0.1\dot{7}\dot{8}, \frac{61}{330}$$

A solid metal cube has a side length of 6cm to 2 significant figures.

$$v = 5.95^3 = 210.6448... \text{ cm}^3$$

The mass of the cube is 3.2×10^3 grams correct to 2 significant figures.

$$3250 \text{ g}$$

Work out the upper bound for the density of the metal.

$$\text{Max } \rho = \frac{m (\text{Max})}{v (\text{Min})} = \frac{3250}{210.644...}$$

$$15.4288... \text{ g/cm}^3$$