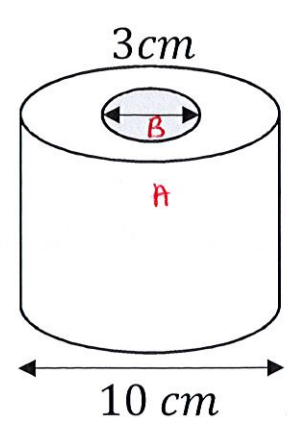


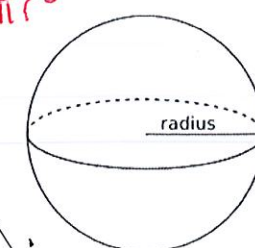
Volume of cuboid = $21 \times 7 \times 4 = 588 \text{ cm}^3$

The diagram shows a packet of three jams in a Christmas packet. Each jar is the same size. Calculate the total amount of jam in the present.



Calculate the volume of the toilet roll.

Volume of the roll = $200\pi - 18\pi = 182\pi = 571.77 \text{ cm}^3$

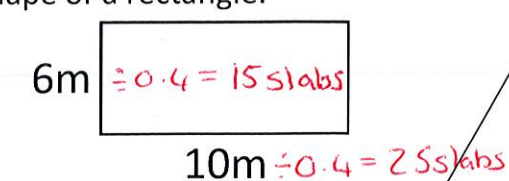


The science department are making model planets. The radius of the model Earth is 7 cm.

They are using a metal with density of 0.6 g/cm^3 . Calculate the mass of the sphere.

Volume of sphere = $\frac{4}{3} \pi r^3 = \frac{4}{3} \pi \times 7^3 = 1436.8 \text{ cm}^3$
 $d = \frac{m}{v}$
 $m = 0.6 \times 1436.8 = 862.08 \text{ g}$

The diagram shows a patio in the shape of a rectangle.

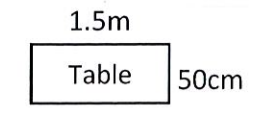


Sean is going to cover the patio with paving slabs. Each paving slab is a square of side 40 cm.

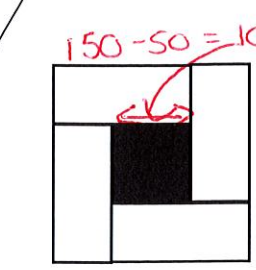
Sean buys 380 slabs, does he have enough?
 $15 \times 25 = 375$ slabs in total.

Yes he has five slabs spare.

Miss B redesigns her class room in to group tables. What is the area of the gap in the middle of the tables?

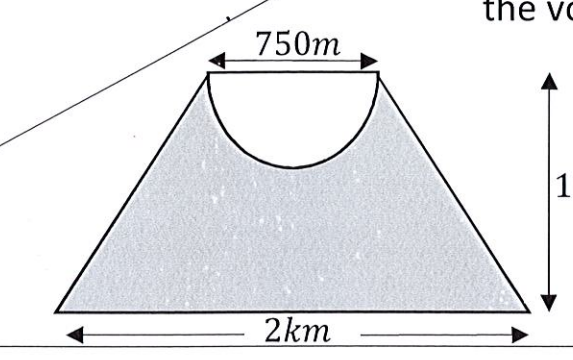


$50 \times 50 = 2500 \text{ cm}^2$
 $100 \times 100 = 10000 \text{ cm}^2$
 or $1 \times 1 = 1 \text{ m}^2$

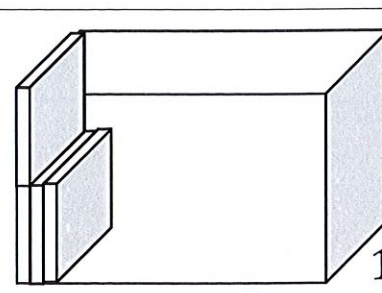
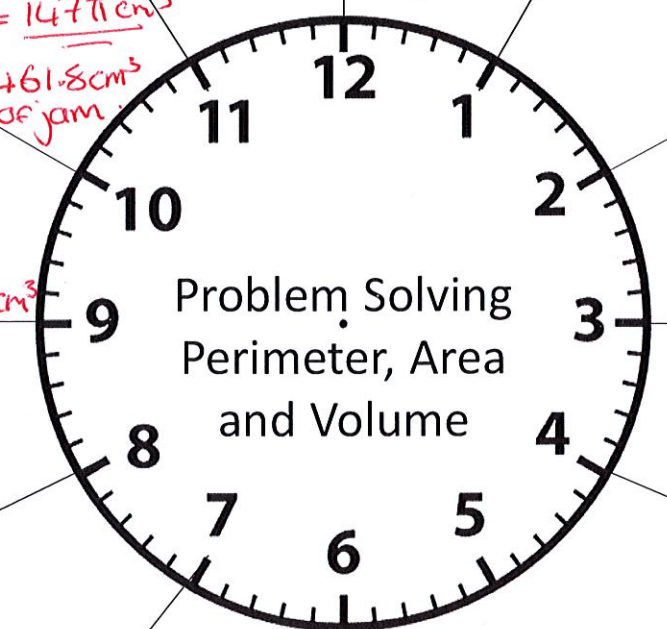


Area of shaded = $0.220893 = 2.0625 - 1.84 \text{ km}^2$

The volcano holds magma in a crater. What is the cross-sectional area of the volcano?



Area Semicircle = $\pi \times 3.75^2 = 0.441786 \text{ km}^2$
 Area Trapezium = $\frac{2 + 0.75}{2} \times 1.5 = 2.0625 \text{ km}^2$

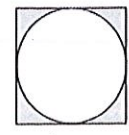


A DVD has measurements $2 \text{ cm} \times 12 \text{ cm} \times 10 \text{ cm}$. How many DVD's can fit in the box?
 $20 \text{ cm} \div 10 = 2$ DVDs high
 $48 \text{ cm} \div 24 = 2$ DVDs wide
 $24 \times 1 \times 2 = 48$ DVDs can fit inside the box.

Adam decides to cover the floor of a room with floorboards. A shop sells floorboards with dimensions of $150 \text{ cm} \times 20 \text{ cm}$ in packs of 5 for £23. His floor is a rectangular shape with length 15 m and width 18 m . How much will it cost him to lay the floorboards in his room?

$90 \times 10 = 900$ boards needed
 $900 \div 5 = 180$ packs needed
 $180 \times £23 = £4140$
 $18 \text{ m} \div 0.2 = 90$ boards

When making ravioli a chef needs to cut circles out of pasta a waste as little pasta as possible. The chef has a cutter that cuts the ravioli.



What is the area of the wasted pasta?

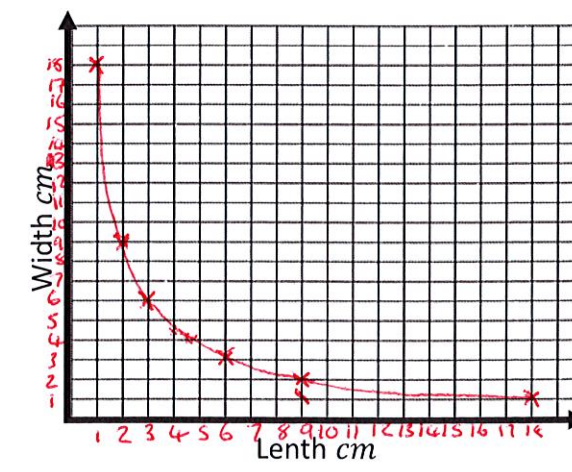
Area of circle = $\pi \times 2.5^2 = 19.6 \text{ cm}^2$
 Area of square = $5 \times 5 = 25 \text{ cm}^2$
 waste per square = $25 - 19.6 = 5.4 \text{ cm}^2$
 waste for 10 pasta shapes = $5.4 \times 10 = 54 \text{ cm}^2$



Area of trapezium = $\frac{12 + 8}{2} \times 10 = 100 \text{ cm}^2$
 Tins of paint $100 \div 5 = 20$
 $20 \times £198 = £3960$

The diagram shows a panel of a ship. It needs painting with tar on the outside to prevent corrosion when in the sea. Each tin of paint covers 5 m^2 and costs £198. How much does it cost to paint the panel?

It's possible to draw many rectangles that have an area of 18 cm^2 . Plot the possible dimensions of the rectangle on the graph.



What is the largest possible perimeter of the rectangle with integer lengths?

- 1 18×1
- 2 9×2
- 3 6×3
- 6 3×6
- 9 2×9
- 18 1×18

Max perimeter is $18 + 1 + 18 + 1 = 40 \text{ cm}$