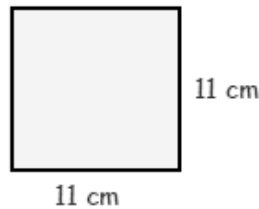


Powers & Roots

1. Find the area of the square shown.



2. Find the area of a square with side :-

a 9 mm

b 30 cm

c 0.5 m.

3. Find :-

a 5^2

b 8^2

c 10^2

d 15^2

e 100^2

f 40^2 .

4. Find :-

a 2^3

b 2^4

c 10^4

d 3^4

e 10^6

f 1^{29} .

5. Find :-

a $\sqrt{49}$

b $\sqrt{81}$

c $\sqrt{0}$

d $\sqrt{144}$

e $\sqrt{169}$

f $\sqrt{2500}$.

Decimals

1. Set down and work out :-

(a) 4.57×8

(b) 3.84×9

(c) $16.94 \div 7$

(d) $13.14 \div 6$

2. Write down the answers to the following :-

(a) 9.1×10

(b) 54.6×10

(c) 8.45×100

(d) 7.1×100

(e) $65.2 \div 10$

(f) $7.3 \div 10$

(g) $439.8 \div 100$

(h) $52 \div 100$

3. Set these down and work them out :-

(a) 6×4.7

(b) 7×8.4

(c) 8×5.9

(d) 9×6.85

(e) $7.68 \div 6$

(f) $6.23 \div 7$

(g) $12.72 \div 8$

(h) $9.81 \div 9$

4. What is one seventh of £11.06 ?

5. A group of 8 children and 5 adults are going to play tennis.

The cost is £2.78 per adult and is **half-price** for each child.

Work out the cost for :-

- (a) the adults.
(b) the children.
(c) the whole group.



6. Joanne and six of her friends bought an ice-cream each.
They each also bought chocolate sauce as a topping for their ice-creams.
The total bill came to £8.75.

If the cost of an ice-cream without a topping was £1.05, calculate :-

- the cost of the ice-creams for everyone.
- the total cost of the chocolate sauce topping.
- the cost of one portion of chocolate sauce.

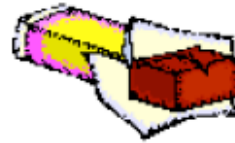
Length & Area

1. Change :-

- (a) 1.8 m to km (b) 7.05 mm to m (c) 100 m to km (d) 100 mm to km

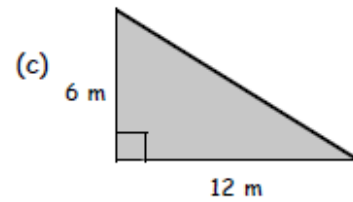
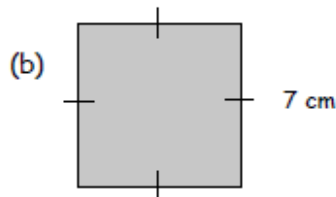
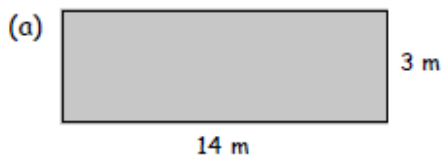
2. I have a stick of chocolate 22.6 cm long.
I cut 6.4 cm from each end and eat them.

What length of chocolate am I left with ?



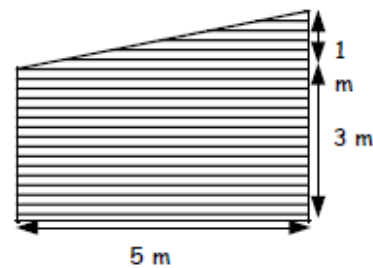
3. Calculate the perimeter of a rectangle with length 8 cm and breadth 3 cm.
4. A rectangle with length 5 cm has a 28 cm perimeter.
Calculate the breadth of the rectangle.

5. Calculate the area of :-



6. The side of a house is to be painted.
The paint costs £6.25 a litre and one litre
will cover an area of eight square metres.

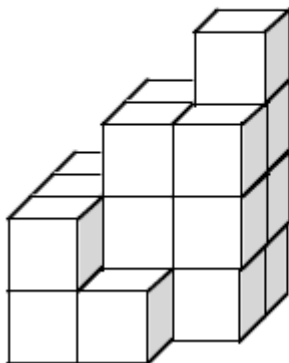
How much will it cost to
paint the side of the house ?



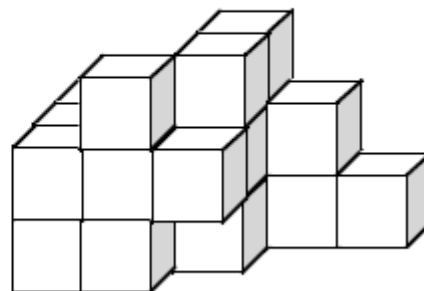
Volume

1. Work out the volumes (in cm^3) of the following shapes :-

(a)

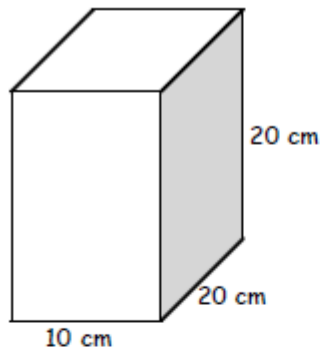


(b)

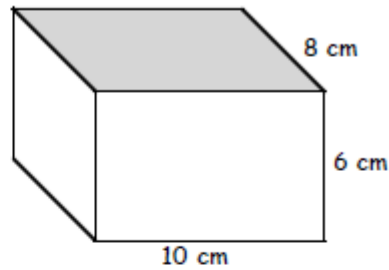


2. Use the formula to find the volume of each of the following cuboids :-

(a)



(b)

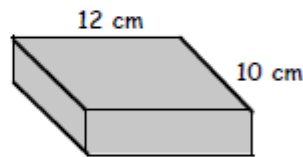


3. Each of the cuboids in question 2 are hollow.

How many litres would each hold ?

4. The volume of the box shown is 360 cm^3 .

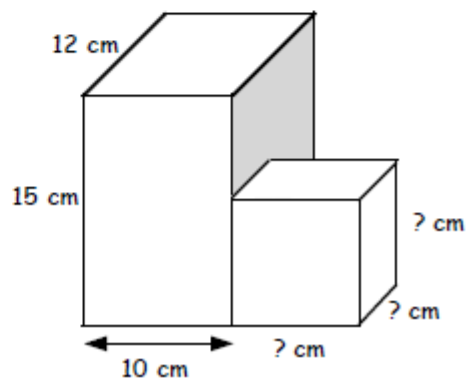
Find the height of the box.



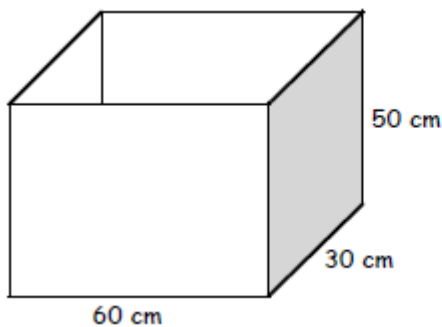
5. This shape consists of a cube and a cuboid.

The total volume of the shape is 2312 cm^3

Determine the length of the edges of the cube.



6.



An empty aquarium has dimensions as shown.

The tank must be at least **three quarters full** of water for the fish to survive.

What is the minimum volume of water that must be poured into the tank ?

(answer in litres)

Circle

1. Write the proper name for each of the following :-

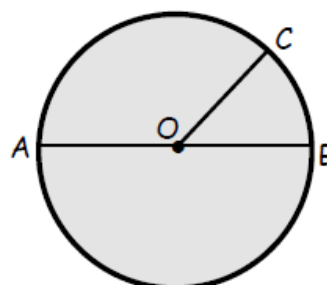
(a) AB

(b) OC

(c) OA

(d) BO

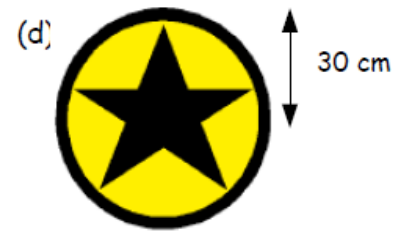
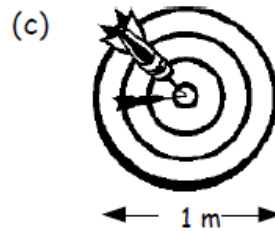
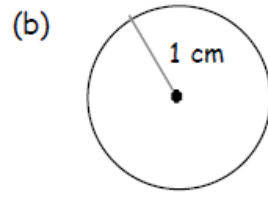
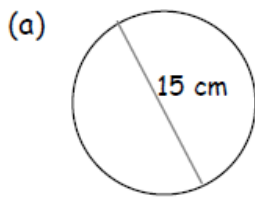
(e) the perimeter of a circle



2. Copy and complete :-

(a) $C = \dots d$ (b) $\pi = 3 \cdot \dots$ (to 2 dec. places)

3. Calculate the circumference of each of the following :-



4. A satellite orbits 900 km above the earth.

Assuming the radius of the earth is 6350 km, calculate the distance the satellite travels in one orbit.



5. A garden fence uses 10 semi-circular pieces of metal.



Calculate the total length of metal needed for the fence shown.

Fractions

1. Change to a mixed number :-

(a) $\frac{22}{7}$

(b) $\frac{83}{3}$

2. Change to a top heavy fraction :-

(a) $4\frac{1}{4}$

(b) $10\frac{2}{9}$

3. Copy and complete :-

(a) $\frac{2}{5} + \frac{1}{5}$

(b) $\frac{4}{5} + \frac{2}{3}$

(c) $\frac{8}{9} - \frac{2}{3}$

(d) $\frac{4}{5} - \frac{3}{8}$

(e) $2\frac{4}{5} + 3\frac{3}{4}$

(f) $1\frac{1}{7} + \frac{3}{5}$

(g) $5\frac{2}{3} - 3\frac{3}{5}$

(h) $5\frac{1}{3} - 2\frac{3}{4}$

4. Copy and complete :-

(a) $\frac{4}{9} \times \frac{7}{8}$

(b) $\frac{2}{3} \times \frac{9}{16}$

(c) $2\frac{1}{3} \times 1\frac{1}{5}$

(d) $5\frac{5}{6} \times 1\frac{3}{7}$

(e) $\frac{5}{6} \div \frac{2}{3}$

(f) $\frac{7}{9} \div \frac{2}{3}$

(g) $\frac{15}{7} \div \frac{5}{14}$

(h) $3\frac{5}{9} \div 2\frac{2}{3}$

5. A rectangle has length $4\frac{2}{3}$ metres and breadth $2\frac{1}{4}$ metres.

Calculate the area of the rectangle.

Equations & Inequations

1. Copy each equation and solve :-

(a) $x + 4 = 7$

(b) $y + 2 = 12$

(c) $7 + y = 8$

(d) $p - 4 = 6$

(e) $5 - x = 13$

(f) $9 - w = 6$

(g) $c - 12 = 16$

(h) $14 - g = 0$

(i) $15 + e = 17$

(j) $8 + x = 7$

(k) $z - 3 = -1$

(l) $31 + a = -10$

2. Copy and simplify :-

(a) $2a = 10$

(b) $3y = 15$

(c) $9h = 81$

(d) $12p = 0$

(e) $5x = 75$

(f) $19w = 76$

(g) $11z = 121$

(h) $8k = 864$

(i) $15q = 300$

(j) $10k = 3000$

(k) $20z = 6000$

(l) $6h = 27$

3. Five calculators (c) are priced at £6.

(a) Form an equation in c to show this.

(b) Solve the equation to find the cost of one calculator.



4 Find the value of each variable by solving the equations :-

(a) $2x + 4 = 16$

(b) $3y + 1 = 13$

(c) $5y + 4 = 9$

(d) $8p - 1 = 23$

(e) $2x - 7 = 13$

(f) $9 + 2w = 15$

(g) $7c - 12 = 9$

(h) $14 - 5g = 4$

(i) $15 - 4e = -1$

(j) $8 + 4x = 0$

(k) $12z - 3 = 57$

(l) $31 - 2a = -2$

5 Solve these inequalities, (leave your answer in form eg. $x > 3$) :-

(a) $x + 4 > 8$

(b) $x - 5 < 7$

(c) $4 - h > 0$

(d) $3f > 15$

(e) $7w \leq 28$

(f) $3c \leq 5$

(g) $2x + 5 < 3$

(h) $5y - 1 \leq 9$

(i) $3g - 1 > 14$

(j) $4x - 6 < -6$

(k) $1 + 3x \leq 6$

(l) $5y - 7 \geq 7$

6 Three pints of beer cost more than £4.50.

(a) Show this as an inequation.

(b) Solve to find the minimum cost of one pint.



7 Four bags of marbles and three extra marbles weigh more than 17 grammes.

(a) Write an inequation to show this information.

(b) Solve to find the minimum weight of a bag.

