

## Starter

1. A straight line passes through the points  $(-2, 5)$  and  $(0, -1)$ .
  - a. Find the equation of this line,  $L_1$ .
  - b. Find the coordinates of the point where this line,  $L_1$ , meets the line with equation  $x = 5$ .
2. An alloy contains iron and zinc in the ratio of 5:6. A block of this alloy contains 30 g of zinc. What weight of iron does it contain?
3. A plank of wood 9 m long rests against a wall so that its lower end is 4 m from the foot of the wall.  
What angle does the plank make with the ground?
4. Solve
  - a.  $1 + \frac{5x}{2} = 16$
  - b.  $\frac{2}{7}x + 4 = 8$

## Starter

1. Solve

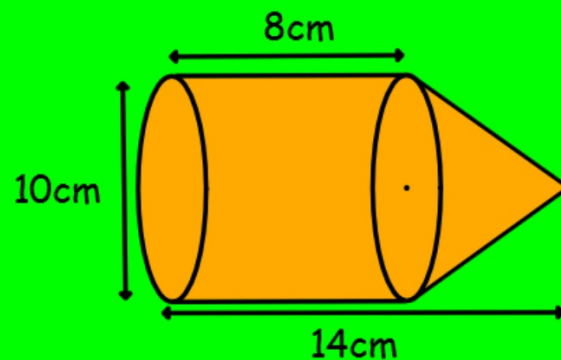
a.  $8(2x - 3) > 10 - 3(x + 4)$

b.  $\frac{x}{2} + \frac{1}{3} = 4$

2. A cliff is 160 m high. The angle of elevation of the cliff-top from a buoy floating in the sea is  $14^\circ$ .

Find how far the buoy is from the bottom of the cliff.

3. Find the volume of the shape below.



## Starter

1. Fully factorise the following

a.  $27ab^2c^3 + 36ab$

b.  $14x^2yz^2 - 7x^3y^4z + 70xy^2z$

2. Solve

a.  $\frac{2x}{3} + \frac{3}{5} = 4$

b.  $10 - (x - 3) + 2(x + 5) = 1$

3. After take-off, an aeroplane flies 12 km through the air to climb to a height of 5 km. Calculate the angle at which it is climbing.

4. Special promotional packs of Revels offer "30% extra free".  
In a promotional pack there are an average of 117 Revels.  
What is the average number of Revels in a standard bag?

## Starter

1. A man walks 8.7 km due North and then turns to walk a further 6.2 km due East. What is the shortest distance he now has to walk to return to his starting point?

2. Adele receives an annual salary of £3,518,000 from her record label Mercury.

In her contract it states that for every number one album she releases, her salary will increase by 14.15%.

After five number one albums what would her new salary be?  
Give your answer correct to 3 significant figures.

3. Solve

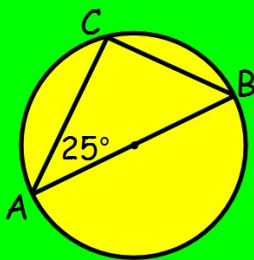
a.  $\frac{2x}{5} + 3 = \frac{7}{2}$

b.  $\frac{x+1}{4} + \frac{x+2}{5} = 2$

## Starter

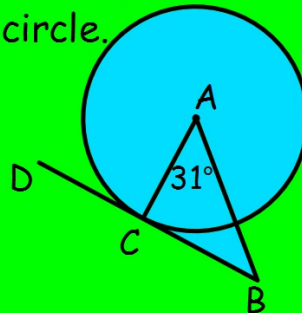
- If  $a = 11$ ,  $b = 3$ ,  $c = (-2)$ , evaluate the following expressions
  - $a^2 - bc$
  - $ac^2 + b^3$
  - $a - (b - c)^2$
- A sector of a circle has radius 4cm and angle  $41^\circ$  at its centre.
  - Find the area of the sector.
  - Find the **perimeter** of the sector.
- Find the size of angle  $ABC$  in each diagram below.

a.



b.

BD is a tangent to the circle.



c.

