

## Starter

1. Solve:

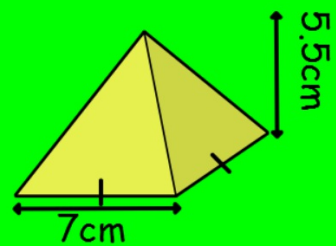
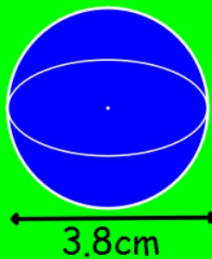
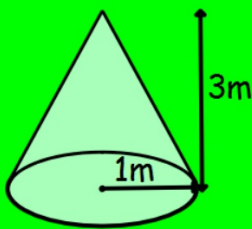
a.  $7 - 2(x + 4) = 5(x - 9)$

b.  $2(x + 4) < 3x - 5$

2. Alice is climbing Mount Kilimanjaro.

As she is building up her fitness, she will climb 12% more each day. If she climbed 1200 feet on Monday, how much would she climb on Thursday? Round your answer to 3 s.f.

3. Find the volume of each shape below.



## Starter

- Find the gradient and the y-intercept for each line below.  
a.  $2y - 3 = 8x$                       b.  $4x - 4y + 2 = 0$                       c.  $9y + x = 0$
- Owen buys a model plane and builds it up to sell to his friend.  
His friend pays him £65 for the plane.  
Owen calculates that he has made a 30% profit.  
What was the original price of the plane?  
Give your answer correct to 2 s.f.
- Find the volume of a cylinder with diameter 9 cm and height 12 cm.
- Solve:  
$$\frac{2}{3}x - 6 = 24$$

## Starter

1. Find the equation of the line joining

a.  $(0, -3)$  to  $(5, 7)$

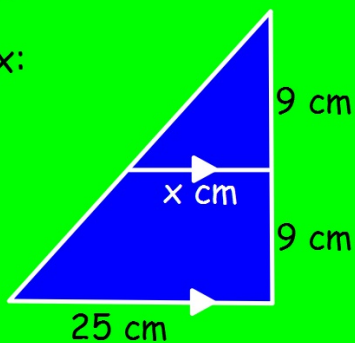
b.  $(-5, -2)$  to  $(0, -8)$

2. Solve:

a.  $\frac{x-4}{5} + 3 = 6$

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

3. Find  $x$ :



4. Find the diameter of a hemisphere with volume  $4,380\text{cm}^3$ .

## Starter

1. Sketch each line

a.  $y = 2x - 3$

b.  $y = 3x + 6$

2. Calculate the area of a sector with angle at centre of  $42^\circ$  and radius of 7.9m.

3. a. A cone has volume  $243\text{cm}^3$  and its radius is 4.6cm.

Calculate its height.

b. A hemisphere has volume  $3,575\text{cm}^3$ .

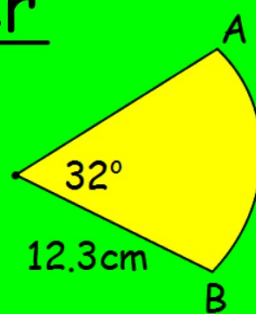
Calculate its radius.

4. A train leaves Edinburgh at 18.18 and travels 161 miles to York at an average speed of 69 m.p.h.

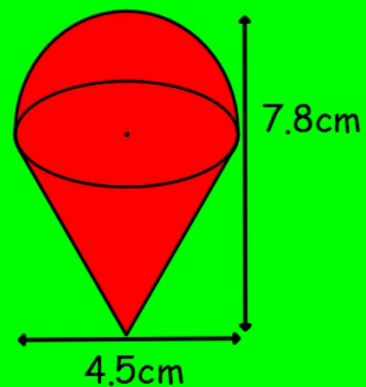
What time will it arrive in York?

## Starter

1. Calculate the arc length AB.



2. Reg invests £250,000 in a high yield bond with an interest rate of 3.78% p.a. How much compound interest would he receive over the course of 4 years? Round your answer to the nearest thousand pounds.



3. Calculate the volume of the shape shown opposite, made of a hemisphere on top of a cone.