

## Starter

1. Solve

a.  $5x - 2(x + 3) > 10$

b.  $6(x + 5) - 2(2x - 3) = 0$

2. A straight line has the equation  $2y - 8x + 6 = 0$

Find the gradient of the line and the coordinates of the point where it crosses the y-axis.

3. Pam is currently on a Duke of Edinburgh training exercise.

She leaves base camp and walks on a bearing of  $068^\circ$  to meet her team. What bearing should she then take to return to camp?

4. Find the diameter of a hemisphere with volume of  $236\text{cm}^3$ .

## Starter

1. Calculate

a.  $\frac{7}{10}$  of  $1\frac{2}{3} + 2\frac{1}{4}$

b.  $6\frac{2}{5} \div 1\frac{1}{15}$

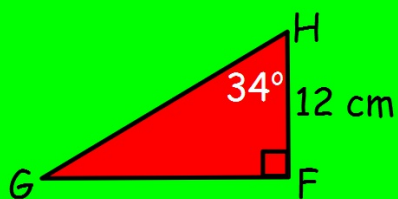
2. Fraser buys an external hard drive for £105.99 in a sale.

If it had been reduced by 30%, how much did it cost before the sale?

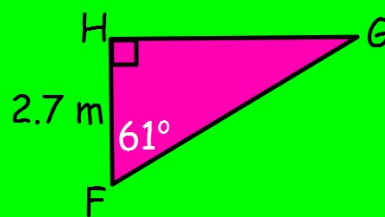
3. Find the arc length of a sector which has a radius of 18 cm and an angle of  $155^\circ$  at its centre.

4. Calculate the length of FG in each triangle:

a.



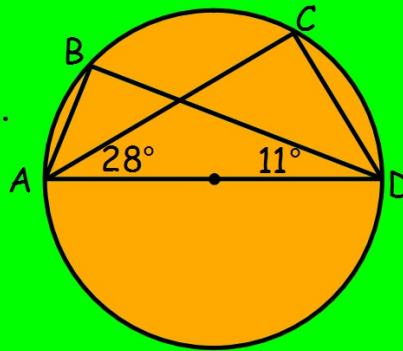
b.



## Starter

1. The crowd at a football stadium is increasing by 3.5% each year. Three years ago, the average crowd was 7250. What will it be now? Give your answer to 2 s.f.

2. Find the size of angle BDC.



3. The following information represents the number of hours that a group of 55 pupils have spent revising for their Higher History prelim:

12 31 27 21 19 16 23 35 9 14 11 19 20

- a. Display the information in an ordered stem and leaf diagram.
- b. Find the 5-figure summary of this data.

## Starter

1. Fully factorise

a.  $56d^2f^2 - 32df^3$

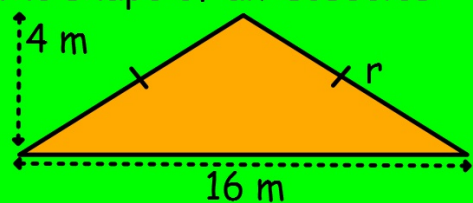
b.  $21x^3yz^3 + 28xy^2z^4 - 49x^2y^4z^3$

2. A sector with radius 5.2cm, has an area of  $14.15\text{cm}^2$ .  
Calculate the angle at centre of the sector.

3. a. Find the volume of a cylinder which has a diameter = 8 cm and height = 12 cm. Give your answer to 3 s.f.  
b. A cuboid has twice the volume of the cylinder in part a.  
If it has a length = 5 cm, breadth = 9 cm, find its height.

4. The side view of the roof of a house is in the shape of an isosceles triangle, as shown.

Calculate the length,  $r$ , of the sloping side of the roof



## Starter

1. A chemical compound is made by combining carbon and iron in the ratio 2:5. The resulting compound weighs 630 grams.  
How much of the compound is carbon?
2. Neil completes a 10 km fun-run in a time of 1 hour 15 mins.  
What was his average speed?
3. Solve:  $4 - \frac{x-2}{3} = \frac{x-1}{2}$
4. The glass shown is filled two thirds of the way up.  
It is known that the volume of water in the glass is  $471.24\text{cm}^3$ .
  - a. If the diameter of the surface of the water is 10cm, find the height of the water,  $h$ .
  - b. Hence, find the total height of the glass.

