

## Starter

1. Multiply out the brackets and simplify

a.  $7(x + 2) - 11(x - 3)$

b.  $9 - 3g(g - 4) + 2(g^2 - 9)$

2. Richard measures the ivy growing on the front of his house as having a height of 2.6m.

The height of the ivy increases by 4.3% every year.

What will the height of the ivy be in 5 years?

Give your answer correct to 3 significant figures.

3. On Saturday, Sarah started with  $x$  sweets in her Halloween bag.

She collected 20 more, which then gave her three times as many as she started with. How many did she have to begin with?

4. A straight line passing through the points  $(-5, 2)$  and  $(8, j)$  has a gradient of 6. Find the value of  $j$ .

## Starter

1. Fully factorise
  - a.  $18k^2 - 54k$
  - b.  $63xy^3 + 28x^4y^2$
2. Which of these fractions is bigger, and why?
  - a.  $\frac{5}{6}$  or  $\frac{3}{4}$
  - b.  $\frac{4}{11}$  or  $\frac{3}{7}$
3. A straight line passes through the points (0, -5) and (2, 6).
  - a. Find the equation of this line.
  - b. Hence, find the point of intersection between the above line and the line  $y = -4$ .
4. A small firm employs 12 people.
  - a. If there are  $x$  men, find an expression for the number of women.
  - b. Apparently, a man earns £5 per hour but a woman only earns £4 per hour. If the total wages per hour are £52, find  $x$ .

## Starter

1. Find the gradient of each of the following lines:

a.  $y = -3x + 7$

b.  $5y + 4x = 3$

c.  $8 - 6y + 3x = 0$

2. Solve

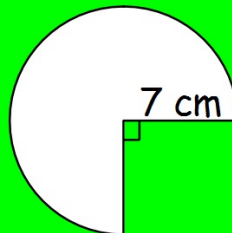
a.  $5x - 2(x + 3) = 10$

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

3. Louise and her friends recently visited a MAC make-up store where they spent £1200 on cosmetics.

If this included a 60% discount, how much did the make-up originally cost?

4. Find the area of this sector.



## Starter

1. Fully factorise

a.  $24a^2b + 30ab^2$

b.  $42x^2yz^3 - 35x^2y^2z^4$

2. Find the equation of the straight line passing through:

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

b.  $(-5, 2)$  and  $(0, -9)$

3. A buffalo can run long distances at a steady speed of 28 kilometres per hour.

At this speed how far will a buffalo travel in 3 hours 24 minutes?

4. A triangle has one side  $x$  cm long. The longest side is twice this length, and the shortest side is 4 cm shorter than the longest side.

If the perimeter of the triangle is 20 cm, find  $x$ .

## Starter

- For each pair of points, find
  - the gradient
  - the distance between them
  - $(6, 9)$  and  $(-3, 5)$
  - $(-3, 0)$  and  $(8, -1)$
- The following information represents the ages of people at a recent screening of Spectre:

51 31 27 21 19 18 23 35 38 17 22 19 20

  - Display the information in an ordered stem and leaf diagram.
  - Find the 5-figure summary of this data.
- Bob drives from Perth to Dundee, a 28 mile journey which takes him 40 minutes. Calculate his average speed, giving your answer in miles per hour.