### March 29th 5-a-day Higher

#### Simplify

\[2(3x + 4) - 3(4x - 5)\]

#### The force, \(F\), between two magnets is inversely proportional to the square of the distance, \(d\), between them.

When \(F = 4\), \(d = 3\).

Express \(F\) in terms of \(d\).

#### ABC is a garden. A tree is planted closer to wall AB than wall BC

Show the possible locations the tree can be planted

![Diagram of triangle ABC](image)

#### Two spheres have volumes in the ratio 8:125

The radius of the larger sphere is 30cm.

What is the radius of the smaller sphere?