### 20th September

**Prove**  \((n + 6)^2 - (n + 2)^2\) is always a multiple of 8

**Find** \(x\) and \(y\).

The volume of gas \(V\) is inversely proportional to the pressure \(p\).

By what percentage will the pressure of the gas change if its volume is increased by 30%?

**Solve the inequality**  \(x^2 - x - 30 \geq 0\)

Julie has an empty container. She puts some white, yellow and green counters into the box. The ratio of white to yellow to green counters is 2:2:1. Julie takes at random, 2 counters from the box, one at a time, without replacement. The probability that she takes two yellow counters is \(\frac{1}{7}\).

How many counters did Julie put in the box?