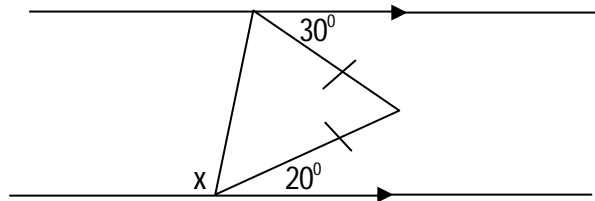


Weekly Quiz

Questions:

Week 11 – Solutions to the maths office by Thursday 11th November

1. Tom has ten boxes. Six contain pens, three contain pencils and two contain both pens and pencils. How many boxes contain neither pens nor pencils?
2. Altogether 28 handshakes were exchanged at a party. Each person shook hands exactly once with each of the others. How many people were there present?
3. Find the angle marked x



4. Each of the nine squares in the diagram is to be filled with a 1, 2, or 3 so that each row and each column contain one 1, one 2 and one 3. What is the sum of the numbers which will go into the shaded boxes?

	2	
1		

5. You may have seen the Pythagorean triple that $3^2 + 4^2 = 5^2$.

Can you find 5 consecutive numbers such that $a^2 + b^2 + c^2 = d^2 + e^2$?

Weekly Quiz

Solutions:

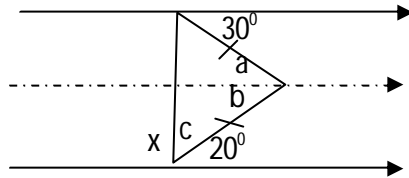
Week 11 – 11/11/04

- 10 boxes, 6 with pens, 3 pencils and 2 both. Therefore 1 with pencils only and 4 with pens only so 3 contain neither. Hint: Use a Venn diagram
- 28 handshakes
Triangular numbers

People	2	3	4	5	6	7	8
Handshakes	1	3	6	10	13	21	28

Therefore 8 people in the room.

3.



By alternate angle theory $a = 30^\circ$ and $b = 20^\circ$.

As triangle isosceles. $c = (180 - 50) \div 2$

$$\begin{aligned}
 \text{Therefore angle } x &= 180 - c - 20 \\
 &= 180 - 65 - 20 \\
 &= 95^\circ
 \end{aligned}$$

4.

2	1	3
3	2	1
1	3	2

So sum = 4

5.

$$\begin{array}{r r r r r r}
 a^2 & + & b^2 & + & c^2 & = & d^2 & + & e^2 \\
 10^2 & + & 11^2 & + & 12^2 & = & 13^2 & + & 14^2 \\
 100 & + & 121 & + & 144 & = & 169 & + & 196 \\
 & & & & 365 & = & 365 & &
 \end{array}$$