## National 5 Homework - Relationships

## WORKING with SIMULTANEOUS EQUATIONS

1. Two lines have equations $\quad 2 x+3 y=12 \quad$ and $x+y=5$.

By drawing graphs of the two lines, find the point of intersection of the 2 lines.
2. Solve, by substitution, the equations

$$
\begin{align*}
3 a+1 \cdot 2 b & =14 \cdot 4 \\
a & =0 \cdot 5 b+3 \tag{4}
\end{align*}
$$

3. Solve, by elimination, the equations

$$
\begin{align*}
3 p-2 q & =4 \\
p-3 q & =13 \tag{3}
\end{align*}
$$

4. Mr. Martini is ordering tea and coffee for his cafe. He spends exactly $£ 108$ on these each month. In March he orders 4 kg of tea and 6 kg of coffee. In April he changes his order to 8 kg of tea and 3 kg of coffee.

How much do the tea and coffee cost each per kilogram?
5. An electrical goods warehouse charges a fixed price per item for goods delivered plus a fixed rate per mile.

The total cost to a customer 40 miles from the warehouse for the delivery of 5 items was $£ 30$.

A customer who lived 100 miles away paid $£ 54$ for the delivery of 2 items.
Find the cost to a customer who bought 3 items and lives 70 miles away.
6. A straight line with equation $y=a x+b$ passes through the points $(2,4)$ and $(-2,-2)$. Find the equation of the line.

25 marks

