## Straight Lines

1. Find the equation of the line through the point $(3,-5)$ which is parallel to the line with equation $3 x+2 y-5=0$.
2. Find the equation of the line through the point $(2,3)$, perpendicular to the line $x-4 y+7=0$.
3. $P$ and $Q$ are the points $(-4,5)$ and $(2,7)$. Find the equation of:
a) The line $P Q$
b) the perpendicular bisector of PQ
4. The point $A$ has coordinates $(7,4)$. The straight lines with equations $x+3 y+1=0$ and $2 x+5 y=0$ intersect at $B$.
a) Find the gradient of $A B$.
b) Hence show that $A B$ is perpendicular to only one of these two lines
5. Prove that the points $R(-2,12), S(1,-3)$ and $T(5,-23)$ are collinear.
6. A line makes an angle of $40^{\circ}$ with the positive direction of the $x$-axis.

Find the gradient of the line (correct to 2 decimal places).
7. The vertices of the triangle $A B C$ are $A(-2,6), B(-5,-4)$ and $C(5,0)$.
a) Find the equation of $A M$, the median from $A$.
b) Find the equation of $B P$ the altitude from $B$.
c) The median from $A$ and the altitude from $B$ intersect at point $T$.

Find the coordinates of $T$.

