Equation of straight lines

1. Here are the equations of 5 straight lines.

P $y = 2x + 5$ **Q** $y = -2x + 5$
R $y = x + 5$ **S** $y = -(1/2)x + 6$
T $y = (1/2)x + 1$

(a) Write down the letter of the line that is parallel to $y = x + 6$
(b) Write down the letter of the line that is perpendicular to $y = 2x - 1$
(c) Find the coordinates of the point where the line $y = 2x + 5$ cuts the y axix and x-axis.

2. The straight line AB has gradient 3 and passes through the point (0, 4).
Write down the equation of the line AB.

3.a. Find the equation of the line which passes through the points (0, 3) and (6, 6).
(b) Find the equation of the line that is parallel to the line in part (a) and passes through thepoint (0, –1).
(c) Find the gradient of a line perpendicular to the line in part (a).

4. Here are the equations of four lines
Line A $y = 3x - 2$ Line B $y = 2 - 3x$
Line C $y = 1/3\ x + 2$ Line D $y = 3x$
(a) Which two lines are parallel?
(b) Which two lines intersect on the y-axis?
(c) Which two lines are perpendicular?

5. (a) A straight line has gradient 3 and passes through the point (–1, –2).
Find the equation of straight line.
(b) Work out the equation of the straight line that is perpendicular to the straight line in part (a) and passes through the point (0, 4).

6. A is the point (1, –2).B is the point (5, 4).
Find the equation of the line perpendicular to AB, passing through the mid-point of AB.

7. The circle c has equation x2 + y2 = 1. The line l has gradient 3 and intercepts the y axis at the point (0, 1).c and l intersect at two points.
Find the co-ordinates of these points.

8. Find the midpoint and the length to 2 decimal places of the line AB, given that A = (-2, 1) and B = (5, 3).