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EQUATIONS OF STRAIGHT LINES

KCSE 1989 – 2012 Form 2 Mathematics		Working Space
1.	**1989 Q23 P1** A rhombus PQRS is such that Q lies on the x axis. The coordinates of vertices P and R are (2, 4) and (6, 2) respectively. Determine (i) The coordinates of Q (4marks) (ii) The coordinates of S (4marks)	
2	**1992 Q9 P2** A perpendicular is drawn from a point (3, 5) to the line $2y + x = 3$. Find the equation of the perpendicular. (3 marks)	
3	**1995 Q 5 P1** A perpendicular to the line $y - 4x + 3 = 0$ passes through the point $(-8, 5)$ Determine its equation (2 marks)	

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		Working Space
4	**1997 Q 24 P1** The coordinates of the points P and Q are (1, -2) and (4, 10) respectively. A point T divides the line PQ in the ratio 2: 1 (a) Determine the coordinates of T (b) (i) Find the gradient of a line perpendicular to PQ (ii) Hence determine the equation of the line perpendicular PQ and passing through T (iii) If the line meets the y- axis at R, calculate the distance TR, to three significant figures	
5	**1999 Q 7 P2** The equation of a line is $\frac{-3}{5}x$ + 3y = 6 Find the: (a) Gradient of the line (b) Equation of a line passing through point (1,2) and perpendicular to the given line	
6	**2000 Q 1 P2** Find equation of the perpendicular to the line x + 2 y – 4 and passes through point (2,1)	

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		Working Space
7	**2001 Q 5 P1** A line L_1 passes though point (1,2) and has a gradient of 5. Another line L_2, is perpendicular to L_1 and meets it at a point where x = 4. Find the equation for L_2 in the form of y = mx + c	
8	**2003 Q 4 P2** A straight line passes through points A(-3,8) and B(3, -4).Find the equation of the straight line through(3,4) and parallel to AB. Give the answer in the form y – mx +c, and c are constants. (3 marks)	
9	**2004 Q 16 P1** P(5,-4)and Q (-1,-2) are points on a straight line. Find the equation of the perpendicular bisector of PQ: giving the answer in the form y = mx + c.	

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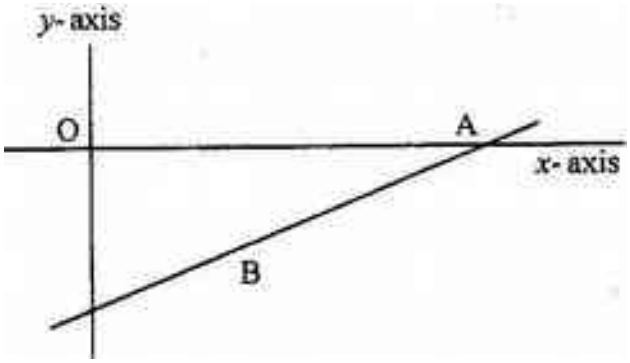
	(4 marks)	Working Space
10	**2005 Q 11 P1** On the diagram below, the line whose equation is $7y - 3x + 30 = 0$ passes through the points A and B. Point A on the x- axis while point B is equidistant from x- and y – axes.  Calculate the co-ordinates of the points A and B (3 marks)	
11	**2005 Q 12 P2** Two lines L_1 and L_2 intersect at a point P. L_1 passes through the points (-4,0) and (0,6). Given that L_2 has the equation: $y = 2x - 2$, find, by calculation, the coordinates of P. (3 marks)	

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		Working Space
12	**2006 Q 9 P1** A line with gradient of -3 passes through the points (3. k) and (k.8). Find the value of k and hence express the equation of the line in the form of ax + by = c, where a, b, and c are constants.	
13	**2007 Q 7 P2** Find the equation of a straight line which is equidistant from the points (2,3) and (6, 1), expressing it in the form ax + by = c where a, b and c are constants	
14	**2008 Q 11 P1** Three vertices of a rhombus ABCD are; A(-4,-3), B(1,-1) and C(3,4) are constants. a) Draw the rhombus on the grid provided below. (2 marks) b)Find the equation of the line AD in the form	

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	y = mx + c, where and c are constants. (2 marks)	Working Space
15	**2008 Q 15 P1** The equation of line L_1 is 2y-5x-8=0 and line L_2 passes through the points (-5, 0) and (5,-4). Without drawing the lines L_1 and L_2 show that the two lines are perpendicular to each other. (3 marks)	
16	**2009 Q 9 P1** A line which joins the points A (3,k) and B (-2,5) is parallel to another line whose equation is 5y +2x = 10 Find the value of k. (3 marks)	
17	**2009 Q 14 P1** The diagonals of a rhombus PQRS intersect at T. Given that P(2,2),Q(3,6) and (-1,5):	

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	(a) Draw the rhombus PQRS on the grid provided; (b) State the coordinate of T.	Working Space
18	**2010 Q 3 P1** A straight line / passes through the point(3,-2) and is perpendicular to a line whose equation is $2y - 4x = 1$. Find the equation of / in the form y= mx + c, where m and c are constants. (3 marks)	
19	**2011 Q 12 P1** Three vertices of a parallelogram PQRS are P(-1, -2), Q(8,-5)and R(5,0). a) On the grid provided below draw the parallelogram PQRS (1 mark) b) Determine the length of the diagonal QS.	

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	(2 marks)	Working Space
20	**2012 Q13 P1** A line L passes through point (3, 1) and is perpendicular to the line $2y = 4x + 5$. Determine the equation of line L. (3 marks)	
21	**2012 Q22 P1** The equation of a curve is $y = 2x^3 + 3x^2$ (a) Find: (i) the x – intercept of the curve (2 marks) (ii) the y – intercept of the curve (1 mark) (b) (i) Determine the stationery points of the curve. (3 marks) (ii)For each point in (b) (i) above, determine whether it is a maximum or a minimum. (2 marks) (c) Sketch the curve (2 marks)	

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