Revision exercises/ Math 4

1. Solve the following equations and inequalities
   a) $|2x+4|-2=0$ b) [illegible]

2. Find the axes intercepts of these lines:
   a) $2x - 3y = 12$ b) $2x + 3y - 4 = 0$

3. Find the equation of straight line that passes through the points (-1, 2) and (0, 1).

4. The lines $px + 4y - 2 = 0$ and $2x - y + p = 0$ are perpendicular. Find the value of p.

5. A triangle is made from the coordinate axes and the line $3x + 4y + p = 0$. The area of the triangle is 6. What is the value of p?

6. Find the equation on the line that passes through the point (-1 ,3) and is parallel to the line with equation $2x - y + 7 = 0$.

7. Solve these simultaneous equations
   a) $\begin{cases} 3x-2y=-1 \\ 5x+2y=9 \end{cases}$ b) $\begin{cases} 3x+5y=34 \\ 3x+7y=44 \end{cases}$

8. Find the equation of the perpendicular bisector of the line segment joining the points (1,2) and (3,1).

9. A triangle ABC, has A at the point (7,9), B at (3,5) and C at (5,1). Find the equation of the line joining the mid-points of AB and AC. Find also the area of the triangle enclosed by this line and the axes.

10. Find the distance from (2,4) to the line $y = 2x + 10$.

11. The parabola $y = x^2 + 2x - 7$ meets the line $y = 17 - 3x$ at the points P and Q. Find the length of PQ.

12. The curve $y = \frac{1}{4}x^2 - 1$ and the line $2y = x + 10$ intersect at the points A and B, and O is the origin. Calculate the coordinates of A and B, and hence show that OA and OB are perpendicular.

13. Find the centre and radius of the circle whose equation is $x^2 + y^2 + 8x - 2y + 13 = 0$

14. Determine which of the following equations represent circles
    a) $x^2 + y^2 + 4x - 2y + 20 = 0$ b) $x^2 + y^2 + 8 = 0$ c) $x^2 + y^2 + 4x - 2y - 20 = 0$