

MATH 249
Worksheet #1

1. (a) Solve for x: $|2x + 1| \leq |x - 2|$
(b) Solve for x: $\frac{3}{x+1} > \frac{1}{3}$.
2. Find the radius and centre of the circle $x^2 + 4x + y^2 - 2y = 11$.
3. Solve for x:
 - (a) $|x + 1| + 2 > 0$
 - (b) $\frac{3}{x+1} \geq \frac{2}{x+3}$.
4. Given four lines $l_1 : 3x + 2y = 1$ $l_2 : 2y - 3x = 0$ $l_3 : 3x - 2y = 0$ and $l_4 : 2x - 3y = 2$ choose all which are
 - (a) parallel
 - (b) perpendicular.
5. Solve for x:
 - (a) $\frac{1}{x+1} \leq 1 + x$
 - (b) $|3x - 2| > 0$.
6. Find an equation of the line perpendicular to the x-axis passing through the point $(-1, 3)$.
7. Solve for x:
 - (a) $3x + 7 > x^2$
 - (b) $\frac{x}{2} < \frac{2}{x+3}$.
8. Which of the given circles has bigger radius

$$x^2 - 6x + y^2 = 7 \text{ or } x^2 + y^2 + 2y = 15 ?$$