

Solve the following inequalities. Write your solution in interval form **AND** sketch it graphically on the number line. [You should do them without a calculator.] [Odd-numbered answers are on the back.]

1. $(2x + 4)(x - 3) > 0$

2. $x^2 - 3x - 18 \leq 0$

3. $x^2 + 4x + 4 \geq 0$

4. $x^2 - 9 < 0$

5. $2x^2 + x \geq 1$

6. $(x + 2)^2(x - 5)(x + 6) < 0$

$$7. \frac{3x - 6}{x + 4} < 0$$

$$8. \frac{(x - 3)^2}{x - 1} \geq 0$$

$$9. \frac{3 + x}{3 - x} \geq 1$$

$$10. \frac{x^2 - 4}{x^2 + 4} \geq 0$$

$$11. \frac{(x - 1)^2}{(x + 1)(x + 2)} > 0$$

(1). $(-\infty, -2) \cup (3, \infty)$ (3). $(-\infty, \infty)$ (5). $(-\infty, -1] \cup [\frac{1}{2}, \infty)$ (7). $(-4, 2)$ (9). $[0, 3)$ (11). $(-\infty, -2) \cup (-1, 1) \cup (1, \infty)$

[Don't forget to sketch your solutions, too.]

Additional Homework (Absolute Value Exercises): Appendix A, p. A9: #47-55(odd)