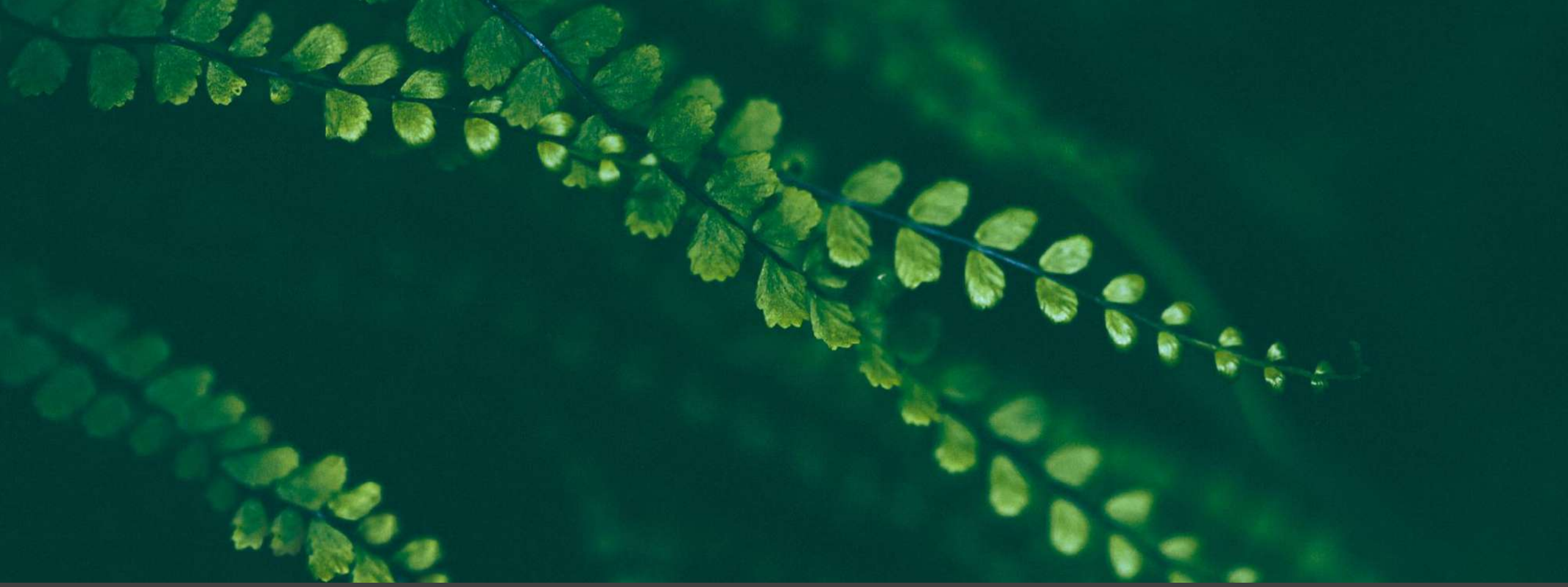


COMPOUND INEQUALITIES

Types of Compound Inequalities

- "and" –This is when the inequality is written **together** and graphs **together**

- "or" –This is when the inequality is written **apart** and graphs **apart**

Steps for Solving Compound Inequalities

- Separate into **two** inequalities
- Solve each inequality **separately**
- Graph each on the **same** number line
- If they graph **together**, rewrite the answer
  - Write the numbers in order, with the variable between.
- If they graph **apart**, write the answer with an "or" between the two answers
  - Write the variables first in each answer with "or" between.

What does and mean?

- Means intersection (makes BOTH inequalities true)

What does or mean?

- Means union (makes one inequality true OR the other, not necessarily both

Solve and Graph

$-4 < \quad +3 < 7$

Solve and Graph

$-2 < 3 \quad -1 \leq 5$

Solve and Graph

$2 \quad -3 < 7$ or $4 \quad -7 \geq 33$

Solve and Graph

$-5 < 3 \quad +4 \leq 7$

Solve and Graph

$-4 \leq 6 - \quad < 8$

Write an inequality, solve, then graph

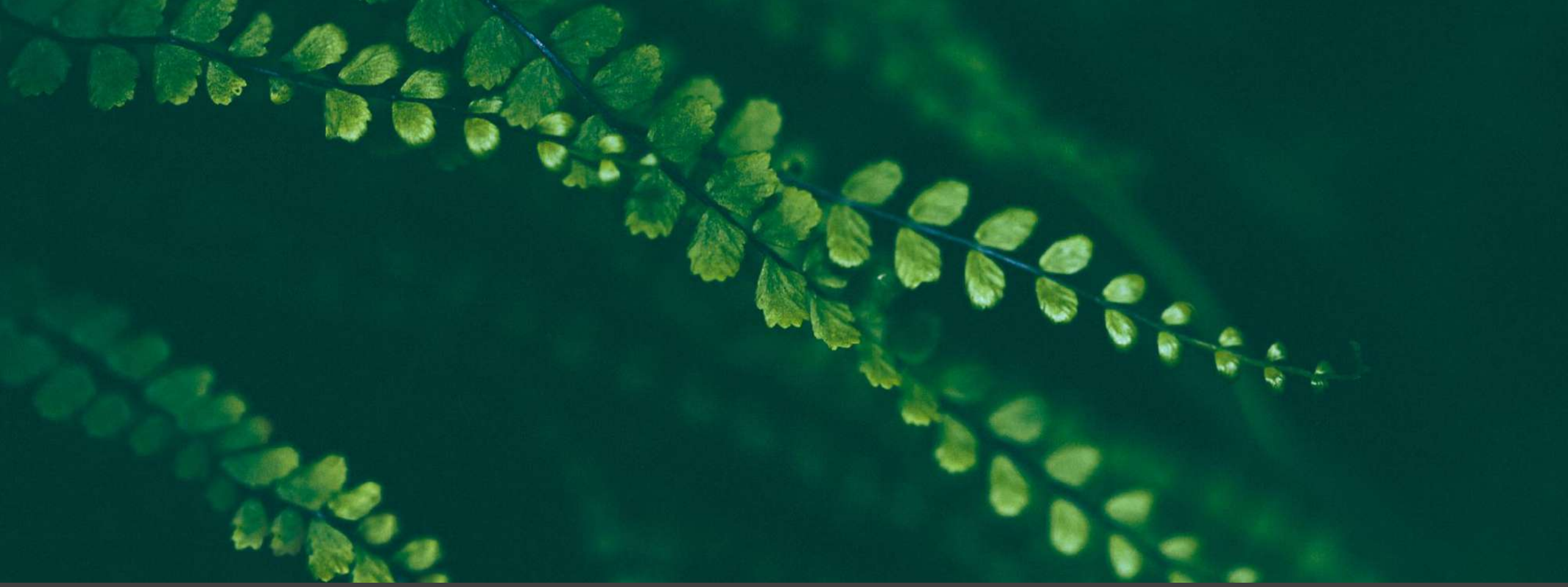
All real numbers that are greater than -2 and less than 3

Write an inequality, solve, then graph

All real numbers that are less than 0 or greater than or equal to 2

- A racquetball club charges a $20 membership and $2 per hour. How many hours per month can be played on a budget of $50 to $70?
  - Let x=number of hours
  - Cost=20+2x
  - $50 \leq 20 + 2 \leq 70$

- The perimeter of a triangle is between 10 and 15, inclusively. If two of the sides of the triangle are 3.7 and 5.2, find the range of possible measurements of the third side.



ABSOLUTE VALUE INEQUALITIES

Steps for Solving Absolute Value Inequalities

- Isolate the absolute value
- Separate your two inequalities
  - One is positive, the other is negative
- Solve each inequality separately
  - DCMAM
- Graph the solution

GORLAND

- Greater is OR
- Less than is AND

Solve and Graph

$|x - 2| < 5$

Solve and Graph

$| \quad | < 5$

Solve and Graph

$|\ \ | > 5$

Solve and Graph: Special Case

$$|\ |\leq -2$$

Solve and Graph: Special Case

$|\ \ | \geq -2$

Solve and Graph

$|x - 5| < 3$

Solve and Graph

$$|2 \quad -3| \geq 9$$

Solve and Graph

$3|\ \ -4| \geq 18$

Solve and Graph

$2|\ \ -4| \leq 10$