**Translating Word Problems into Inequalities**

Step 1 – Identify the variables in the problem
Step 2 – Highlight the important / key information
Step 3 – Set up a ratio and balance equation
Step 4 – Determine the inequality symbol

|  |  |
| --- | --- |
| **Inequality Symbol** | **Meaning** |
| < | “is less than” / “fewer than” |
| > | “is greater than” / “more than” / exceeds |
| ≤ | “is less than or equal to” / “at most” / “no more than” / “ up to” / “maximum” |
| ≥ | “is greater than or equal to” / “at least” / “no less than” / “minimum” |

**Example #1**

Cynthia is at least 3 times the age of her brother

Step 1: X = Cynthia y = brother

Step 2: Cynthia is at least 3 times the age of her brother

 \*Times means multiplication\*

Step 3: Cynthia Brother

 x y

Using the operation from step 2 – what do you have to do to the ratio to balance it / make them the same?

 3 1

 3 1(3)

X 3y

Step 4 : x ≥ 3y

Example #2

 Julie is paid at least 5 dollars more than her co-worker

Step 1 : x = Julie y = co-worker

Step 2: Julie is paid at least 5 dollars more than her co-worker

 \*more means addition\*

Step 3: Julie Co-worker

 X y

Using the operation from step 2 – what do you have to do to the ratio to balance it / make them the same?

 5 0

 5 0 + 5

 X y + 5

Step 4: x ≥ y +5

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**Practice**

The width of a rectangle is at most 4 times its length

There are at most 3 times more girls in a class than boys

An amusement park sells more than 5 times as many adult tickets as student tickets

**More Complex Problems**

The mean mass of a man is 75kg whereas a woman is 60kg. The maximum mass that an elevator can support is 1580kg.

A financial centre hires regular staff and contract staff. Regular employees earn $20/hr and contract employees earn $25/hr. The center has a maximum budget of $2000 per week.