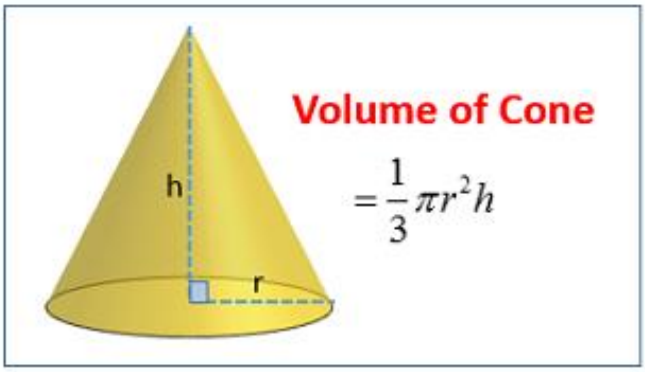
Week 4 Homework

1. Using the simple syntax, write a function that takes two arguments (*h, r*) and returns the volume of a cone.



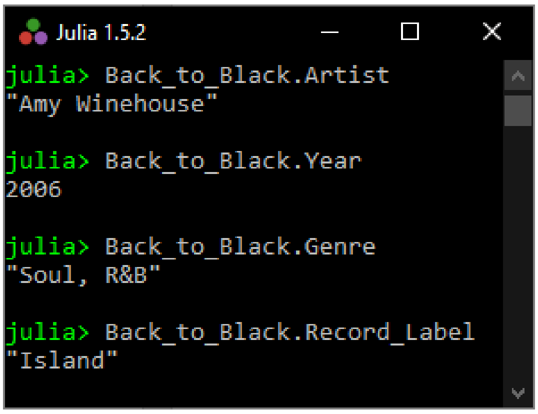
2. Write a function that takes in two arguments (*Height, Weight*) and returns the body mass index (BMI) where:

   BMI = Weight/Height^2

   Print a message that tells the user if they are below (<17), within (17-30), or above (>30) the normal BMI range based on the inputs.
   [Hint: *if-else statement*]

3. Create an object (i.e. struct) called 'Album' that has the following fields:
   - Artist
   - Year
   - Length (minutes)
   - Genre
   - Record Label

   For example, your object could look like this:



```
julia> Back_to_Black.Artist
"Amy Winehouse"

julia> Back_to_Black.Year
2006

julia> Back_to_Black.Genre
"Soul, R&B"

julia> Back_to_Black.Record_Label
"Island"
```

4. **Create a *mutable* struct called JournalPaper.**

   It should have the following fields:

   - **Title (string)**
   - **Lead Author (string)**
   - **Year (Int)**
   - **Journal (string)**
   - **Volume (Float)**
   - **Pages (integer range, e.g. 201:209)**
   - **DOI (string)**
   - **Abstract (string)**

5. **Write a function called *TopicSearch* with one required argument and one keyword argument.**

   The required argument should only be an object of the *JournalPaper* type created above. [Hint: `::JournalPaper`**]**

   The optional keyword argument should be called *topic*, a string with a default value "machine learning**".**

   The function should search the Abstract field of the *JournalPaper* object for the *topic* string and return a true (i.e. a Bool) if found or false if not. [Hint: `occursin(topic, Paper1.Abstract)`**]**

   ****Bonus points if your function replaces the occurrence of *topic* in the Abstract field with the string, "**watching Netflix**" ****