Exercise 1.

Verify that it is a leap year, using the following formula:

p ˄ (¬q ˅ r)

**Algorithm**

1. Read a year: y
2. Calculate “p”; (year, 4): p=boolean
   1. p=Divisible(year/4);
3. Calculate “q”; (year,100): q= boolean
   1. q=Divisible(year/100);
4. Calculate “r”; (year, 400)): r=boolean
   1. r=Divisible(year/400);
5. Deny\_a\_value (¬q): s = boolean
   1. s = Deny\_a\_value (q),
6. Calculate (s ˅r); t= boolean
   1. t= Caculate\_OR (s, r)
7. Calculate (p ^ t); leap = Boolean
   1. Result=Caculate\_And (p, t)
8. Show result(leap)
   1. If result = True
      1. Print "The"+year+" is a leap year"
   2. Else
      1. Print "The" +year+ "is NOT leap year"

**Extra fuction**

1. **Divisible(n/m); result = Boolean**
2. residue =1
3. n=n-m
4. residue =n
5. If residue equal 0?
   1. Yes, so result = True
6. Else
   1. If the residue is greater than 0
      1. Return steps 2
   2. Else
      1. Result = false
7. Return result
8. **Deny\_a\_value ( value), new\_value**
   1. If value is equal True
      1. new\_value=False
   2. else
      1. new\_value=True
   3. Return new\_value
9. **Caculate\_And (value\_a, value\_b); result= boolean**
   1. If value\_a=True and value\_b= True
      1. Return result= True
   2. If value\_a=True and value\_b= False
      1. Return result= False
   3. If value\_a=False and value\_b= True
      1. Return result= False
   4. If value\_a=False and value\_b= False
      1. Return result= False
10. **Caculate\_OR (value\_a, value\_b); result= boolean**
    1. If value\_a=True or value\_b= True
       1. Return result= True
    2. If value\_a=True or value\_b= True
       1. Return result= False
    3. If value\_a=False or value\_b= True
       1. Return result= False
    4. If value\_a=False or value\_b= False
       1. Return result= False

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Second exercise

Calculate the area of a regular polygon, given the size of one side and sides number:

1. Read size of side(l), unit\_metric(u), sides number(n)
2. Calculate angle(n); alpha
   1. Alpha= 360/n
3. Calculate AC (l), AC
   1. AC=l/2
4. Calculate apothem (l, alpha); apothem
   1. Apothem= AC/(tang alpha)
5. Calculate area\_poly(n, Alpha, AC); Area\_poly
   1. Area\_poly=n\*((AC\*Apothem)/2)
6. Show result
   1. Print (“The area of a regular polygon is: ”+ Area\_poly+“ ”+unit\_metric+”^2”)