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**Week 3 Assignment**

**Problem 301**

#include <iostream>  
using namespace std;  
int main()

{ //begins function body  
  double a, b, c; //double is not whole numbers  
  cin >> a >> b >> c ; //input variables  
    
  if (a<b && b<c) //condition if

{ //function start  
    cout << "Yes"; //output  
  }  
  else //condition else

{ //function finish  
    cout << "No"; //output  
  }  
  return 0; //indicates that the program ended successfully  
} //end of function

**Problem 302**

#include <iostream>  
#include <cmath> //library  
using namespace std;  
int main()

{  
  double a, b, c; //double is not whole numbers  
  cin >> a >> b >> c; //input variables  
  
  if (a <= b && b <= c) //condition

{  
    cout << 2 \* a << " " << 2 \* b  << " " << 2 \* c; //output  
  }  
  else //condition

{  
    cout << abs(a) << " " << abs(b) << " " << abs(c); //output  
  }  
  return 0;  
}

**Problem 303**

#include <iostream>  
#include <cmath>  
using namespace std;  
int main() {  
 double a, b, c, d; //double is not whole numbers  
 cin >> a >> b >> c;   
 d = b \* b - 4 \* a \* c; // find discriminant  
 if (d > 0) //condition - if discriminant > 0, find x1, x2

{   
  cout << ((-1)\*b + sqrt(d)) / (2 \* a) << " " << ((-1)\*b - sqrt(d)) / (2 \* a);  
 }  
 else if (d == 0) {  
  if ( -b/(2\*a)==-0){  
  cout << 0;  
  }  
  else{   
  cout << (-b/(2\*a));  
  }  
 }  
 else{  
  cout << "no solution";  
 }  
 return 0;  
}

**Problem 304**

#include <iostream>

using namespace std;

int main() {

double a, b, c; //double is not whole numbers

cin >> a >> b >> c;

if (a >= b && a >= c && b >= c) //condition {

cout << c << " " << a;

}

else if (b >= c && b >= a && a >= c) //condition {

cout << c << " " << b;

}

else if (b >= c && b >= a && c >= a) //condition {

cout << a << " " << b;

}

else if (a >= b && a >= c && c >= b) //condition {

cout << b << " " << a;

}

else if (c >= a && c >= b && a >= b) //condition {

cout << b << " " << c;

}

else if (c >= a && c >= b && b >= a) //condition {

cout << a << " " << c;

}

return 0;

}

**Problem 305**

#include <iostream>  
using namespace std;  
int main() {  
  double a, b, c; //double is not whole numbers  
  cin >> a >> b >> c; //input variables  
    
  if (a+b>c && b+c>a && a+c>b) //condition

{  
    cout << "Yes"; //output  
  }  
  else //condition

{  
    cout << "No";  
  }  
  return 0;  
}

**Problem 306**

#include <iostream>  
using namespace std;  
int main() {  
  int a;  
  cin >> a; //input variable  
    
  if ((a%4==0 && a%100!=0) || (a%400==0)) //condition

{  
    cout << "366"; //output  
  }  
  else //condition

{  
    cout << "365"; //output  
  }  
  return 0;  
}

**Problem 307**

#include <iostream>  
#include <cmath>  
using namespace std;  
int main() {  
   int d, m, y;   
   cin >> d >> m >> y;   
   if( y > 0 && y < 10000) //condition {  
       if ( m > 0 && m < 13) //condition {  
           if(( d > 0 && d < 32) && (m == 1 || m == 3 || m == 5 || m == 7 || m == 8 || m == 10 || m == 12)){  
           cout << "yes";  
           }  
           else if(( d > 0 && d < 31) && (m == 4 || m == 6 || m == 9 || m == 11 )){  
           cout << "yes";  
           }  
           else if(( d > 0 && d < 30) && (m == 2 ) && (( y % 4 == 0 && y % 100 !=0 ) || ( y % 400 == 0 ))) {  
           cout << "yes";  
           }  
           else if(( d > 0 && d < 29) && (m == 2 ) && (!( y % 4 == 0 && y % 100 !=0 ) || !( y % 400 == 0))) {  
           cout << "yes";  
           }  
           else {  
           cout << "no";  
           }     
        }  
             
   }  
    return 0 ;  
}

**Problem 308**

#include <iostream>

#include <cmath>

using namespace std;

int main()

{

int a = 7;

int year;

cin >> year;

for (int i = 2001; i < year; i++) //cycle {

if (i % 4 == 0) //condition {

a -= 2;

}

else //condition {

a -= 1;

}

if (a == 0) //condition {

a = 7;

}

else if //condition (a == (-1)) {

a = 6;

}

}

if //condition (year % 4 == 0) {

a--;

}

cout << a;

}

**Problem 310**

#include <iostream>

#include <cmath>

using namespace std;

int main() {

int a = 1, n;

cin >> n;

for (int i = 0; i < n; i++) //cycle

{

a \*= 2;

}

cout << a;

return 0;

}

**Problem 311**

#include <iostream>

#include <cmath>

using namespace std;

int main() {

int n, a = 1;

cin >> n;

for (int i = 1; i < n + 1; i++) //cycle

{

a \*= i;

}

cout << a;

return 0;

}

**Problem 312**

#include <iostream>

#include <cmath>

using namespace std;

int main() {

int n;

double z = 1; //double is not whole numbers

cin >> n;

for (double i = 1; i < n + 1; i++) //cycle

{

z = z \* (1 + 1 / (i \* i));

}

cout << z;

}

**Problem 314**

#include <iostream>

#include <cmath>

using namespace std;

int main() {

double n, z = 0; //double is not whole numbers

cin >> n;

for (double i = 0; i < n; i++) //cycle

{

z = sqrt(2 + z);

}

cout << z;

}

**Problem 315**

#include <iostream>

#include <cmath>

using namespace std;

int main() {

double x, y = 0; //double is not whole numbers

int n;

cin >> x >> n;

for (int i = 1; i <= n; i++) //cycle

{

y += x;

}

cout << y;

return 0;

}

**Problem 316**

#include <iostream>

#include <cmath>

using namespace std;

int main() {

double a, z = 1; //double is not whole numbers

int n;

cin >> a >> n;

for (int i = 0; i < n; i++) //cycle

{

z \*= (a + i);

}

cout << z;

return 0;

}

**Problem 317**

#include <iostream>

using namespace std;

int main() {

double a, result, z; //double is not whole numbers

int n;

cin >> a >> n;

result = z = 1.0 / a;

for (int i = 1; i <= n; i++) //cycle

{

z /= a + i;

result += z;

}

cout << result;

return 0;

}

**Problem 318**

#include <iostream>

#include <cmath>

using namespace std;

int main()

{

double a, result = 0, n; //double is not whole numbers

cin >> a;

cin >> n;

double z = 1 / a;

for (int i = 2; i <= 2 \* n; i += 2) //cycle {

result += (1 / pow(a, i));

}

cout << result + z;

return 0;

}

**Problem 319**

#include <iostream>

#include <cmath>

using namespace std;

int main() {

double a = 0, k = -1, c = 1, x; //double is not whole numbers

cin >> x;

for (int i = 3; i <= 13; i = i + 2) //cycle

{

c = 1;

for (int l = 1; l <= i; l++)//cycle

{

c = c \* l;

}

k = k \* (-1);

a = a + (k \* (pow(x, i)) / (c));

}

cout << x - a;

}

**Problem 320**

#include <iostream>

#include <cmath>

using namespace std;

int main() {

double x, n, a, result = 1; //double is not whole numbers

cin >> x >> a >> n;

for (int i = 0; i <= n; i++) //cycle {

if (i == 0) {

result = x + a;

}

else //condition {

result = pow(result, 2);

result += a;

}

}

cout << result;

}

**Problem 321**

#include <iostream>

#include <cmath>

using namespace std;

int main() {

double x, a = 1, z = 1; //double is not whole numbers

cin >> x;

for (int i = 2; i <= 64; i \*= 2) //cycle {

a \*= (x - i);

}

for (int d = 2; d <= 64; d \*= 2) {

z \*= (x - (d - 1));

}

cout << a / z;

return 0;

}

**Problem 322**

#include <iostream>

#include <cmath>

using namespace std;

int main() {

double result; //double is not whole numbers

for (int i = 103; i >= 1; i -= 2) //cycle {

result += i;

result = 1 / result;

}

cout << result;

}

**Problem 323**

#include <iostream>

using namespace std;

int main() {

double a, result = 0; //double is not whole numbers

cin >> a;

for (int i = 256; i >= 1; i /= 2) //cycle {

result += a \* a;

result = i / result;

}

cout << a \* result;

return 0;