C programming basic problems and solutions

Part #1

1. C program to find out if three given input form a triangle or not.

Solution:

```
#include <stdio.h>
int main(){

printf("Enter three values: \n");
    int a, b, c;
        scanf("%d %d %d", &a, &b, &c);

        if(a<0 || b<0 || c<0){
            printf("The values does not form a triangle\n");
        }
        else if((a+b)<=c || (a+c)<=b || (b+c)<=a){
            printf("The values does not form a triangle\n");
        }
        else{
            printf("Yes these three values form a triangle\n");
        }


return 0;

}
```

2. C program to find out if three given input satisfy Pythagorean rule for right triangle a^2+b^2=c^2

Solution:

```
#include <stdio.h>
int main(){

printf("Enter three values: \n");
    int a, b, c;
        scanf("%d %d %d", &a, &b, &c);

        if(a!=0 && b!=0 && c!=0){
            if((a+b)>c && (a+c)>b && (b+c)>a){
                if((a*a)+(b*b) == (c*c)){
                    printf("Yes satisfies\n");
                }
                else{
                    printf("Does not satisfies\n");
                }
            }
            else{
                printf("Not a triangle\n");
            }
        }
        else{
            printf("Not a triangle\n");
        }


return 0;

}
```

3. C program to check if a triangle is Equilateral (সমবাহু)

Solution:

```
#include <stdio.h>
int main(){

printf("Enter three values: \n");
    int a, b, c;
        scanf("%d %d %d", &a, &b, &c);

        if(a==b && b==c){
            printf("Yes Equilateral \n");
        }
        else{
            printf("Not Equilateral \n");
        }


return 0;

}
```

4. C program to check if a triangle is Isosceles (সমদ্বিবাহু)

Solution:

```
#include <stdio.h>
int main(){

printf("Enter three values: \n");
    int a, b, c;
        scanf("%d %d %d", &a, &b, &c);

        if(!(a==b && b==c)){
            if(a==b || a==c || b==c){
                printf("Yes Isosceles \n");
            }
            else{
                printf("Not Isosceles \n");
            }
        }
        else{
            printf("Not Isosceles but Equilateral \n");
        }

return 0;

}
```

5. C program to check if a triangle is Scalene (বিষমভুজ)

Solution:

```
#include <stdio.h>
int main(){

printf("Enter three values: \n");
    int a, b, c;
        scanf("%d %d %d", &a, &b, &c);

        if(a!=b && a!=c && b!=c){
            printf("Yes Scalene \n");
        }
        else{
            printf("Not Scalene \n");
        }

return 0;

}
```

6. C program to find area of a triangle

Solution:

```
#include <stdio.h>
int main(){

printf("Enter base and height: \n");
    float height, base, area = 0;
        scanf("%f %f", &base, &height);

        area = 0.5*(base*height);

        printf("Area is = %.2f", area);

return 0;

}
```

7. C program to find area of a square

   Solution:

```
#include <stdio.h>
int main(){

printf("Enter side for square: \n");
    int a, area = 0;
        scanf("%d", &a);

        area = a*a;
        printf("Area is = %d \n", area);

return 0;

}
```

8. C program to find area of a rectangle

   Solution:

```
#include <stdio.h>
int main(){

printf("Enter height and width \n");
        float height, width, area = 0;
            scanf("%f %f", &height, &width);
            area = height*width;

            printf("Area is = %.2f \n", area);

return 0;

}
```

9. C program to find area of a circle

Solution:

```
#include <stdio.h>
#define PI 3.1416
int main(){

    printf("Enter radius \n");
    float r, area = 0;
    scanf("%f", &r);
    area = PI*(r*r);
    printf("Area is = %.2f", area);

return 0;
}
```


10. C program to find circumference (পরিধি) of a circle

Solution:

```
#include <stdio.h>
#define PI 3.1416
int main(){

    printf("Enter radius \n");
    float r, c = 0;
    scanf("%f", &r);
    c = 2*PI*r;
    printf("circumference is = %.2f", c);

return 0;
}
```

11. C program to find diameter (ব্যাস) of a circle

Solution:

```
#include <stdio.h>
int main(){

    printf("Enter radius \n");
    float r, c = 0;
    scanf("%f", &r);
    c = 2*r;
    printf("Diameter is = %.2f", c);

return 0;
}
```

12. C program to find radius (ব্যাস) of a circle if Area is given

Solution:


```
#include <stdio.h>
#include <math.h>
#define PI 3.1416
int main(){

    printf("Enter area \n");
    float area, r = 0;
    scanf("%f", &area);
    r = sqrt((area/PI));
    printf("%.2f", r);

return 0;
}
```

13. C program to find radius of a circle if circumference is given

Solution:

```
#include <stdio.h>
#define PI 3.1416
int main(){

    printf("Enter circumference \n");
    float c, r = 0;
    scanf("%f", &c);
    r = c/(2*PI);
    printf("%.2f", r);

return 0;
}
```


14. C program to find radius of a circle if diameter is given

Solution:

```
#include <stdio.h>
int main(){

    printf("Enter diameter \n");
    float d, r = 0;
    scanf("%f", &d);
    r = d/2;
    printf("%.2f", r);

return 0;
}
```

15. C program to calculate this given function

$f(x) = x^4 + x^2 + 7x - 3$

Solution:

```
#include <stdio.h>
#include <math.h>
int main(){

    printf("Enter x \n");
    int x, fx = 0;
    scanf("%d", &x);
    fx = pow(x, 4)+pow(x, 2)+(7*x)-3;
    printf("%d", fx);

return 0;
}
```


16. C program to convert meter to centimeter

Solution:

```
#include <stdio.h>
int main(){

    printf("Enter meter \n");
    int m, cm = 0;
    scanf("%d", &m);
    cm = m*100;
    printf("Centimeter is = %d", cm);

return 0;
}
```

17. C program to convert meter to foot or foot to meter

Solution:

```
#include <stdio.h>
int main(){

    printf("Enter choice:\n");
    printf("1.Meter to Foot 2.Foot to Meter \n");
    int choice;
    scanf("%d", &choice);

    if(choice == 1){
        float m, f =0;
        printf("Enter meter: ");
        scanf("%f", &m);
        f = m*(3.28);
        printf("Foot is = %.3f \n", f);
    }
    else if(choice == 2){
        float f, m =0;
        printf("Enter foot: ");
        scanf("%f", &f);
        m = f/(3.28);
        printf("Meter is = %.3f \n", m);
    }
    else{
        printf("Invalid choice \n");
    }

return 0;

}
```

18. C program to calculate power rise of a given base number and power/ exponent.

Solution:

```
#include <stdio.h>
int main(){

    int base, power, result = 1;
    printf("Enter base\n");
    scanf("%d", &base);
    printf("Enter power\n");
    scanf("%d", &power);

    for(int i=1; i<=power; i++){
        result = result*base;
    }

    printf("Result = %d", result);

return 0;
}
```

19. Write a C program to calculate sum of number in given range using formula S = n*(n+1)/2

Solution:

```
#include <stdio.h>
     int main(){
         printf("Enter range: \n");
         int n, sum = 0;
         scanf("%d", &n);
         sum = (n*(n+1))/2;
         printf("Sum is = %d \n", sum);

     return 0;
     }
```

20. Write a C program to convert Celsius to Fahrenheit or Fahrenheit to Celsius

Solution:

```
#include <stdio.h>
int main(){
    int choice;
    printf("Enter choice\n");
    printf("1.Celsius to Fahrenheit 2.Fahrenheit to Celsius \n");
    scanf("%d", &choice);
    if(choice == 1){
        float c, f=0;
        printf("Enter Celsius: ");
        scanf("%f", &c);
        f = (c*(9/5))+32;
        printf("Fahrenheit is = %.2f \n", f);
    }
    else if(choice == 2){
        float f, c=0;
        printf("Enter Fahrenheit: ");
        scanf("%f", &f);
        c = (f-32)*5/9;
        printf("Celsius is = %.2f \n", c);
    }
    else{
        printf("Invalid choice");
    }

return 0;

}
```