#7 Half Number

    int number;

    cout << "Please enter the first number  ? \n";

    cin >> number;

    cout << "Half of " << number << " is " << number / 2;

#9 sum of 3 numbers

    short a, b, c;

    cout << "Please enter the first number  A ? \n";

    cin >> a;

    cout << "Please enter the first number   B? \n";

    cin >> b;

    cout << "Please enter the first number  C? \n";

    cin >> c;

    int sum = a + b + c;

    cout << "Output is : " << sum;

#10 avg of 3 marks

    short a, b, c;

    cout << "Please enter the first mark1 ? \n";

    cin >> a;

    cout << "Please enter the first mark2? \n";

    cin >> b;

    cout << "Please enter the first mark3? \n";

    cin >> c;

    int avg = (a + b + c) / 3;

    cout << "Output is : " << avg;

}

#14 swap numbers

    short a, b;

    cout << "Please enter the first number  A ? \n";

    cin >> a;

    cout << "Please enter the first number   B? \n";

    cin >> b;

    cout << "Output : \n";

    cout << a << "\n"

         << b << "\n \n";

    short temp = a;

    a = b;

    b = temp;

    cout << a << "\n"

         << b << "\n";

#15 Rectangle area

   short width, length;

    cout << "Please enter  width ? \n";

    cin >> width;

    cout << "Please enter  length? \n";

    cin >> length;

    short rectangleArea = width \* length;

    cout << "Rectangle area is :" << rectangleArea;

#17 Triangle area

 short base, height;

    cout << "Please enter  base ? \n";

    cin >> base;

    cout << "Please enter  height? \n";

    cin >> height;

    float triangleArea = 0.5f \* base \* height; // f==>float

    cout << "Triangle area is : " << triangleArea;

#19 Circle Area through diameter

    float diameter;

    cout << "Please enter  circle  diameter ? \n";

    cin >> diameter;

    float radius = diameter / 2;

    const float PI = 3.14;

    float circleArea = PI \* radius \* radius; // f==>float

    cout << "circle area is : " << circleArea;

#20 circle area inscribed in a square

    float squareSideLength;

    cout << "Please enter  square side length ? \n";

    cin >> squareSideLength;

    const float PI = 3.14;

    float circleArea = (PI \* squareSideLength \* squareSideLength) / 4;

    cout << "circle area is : " << circleArea;

#21 circle area along the circumference

float circleCircumference;

    cout << "Please enter  circle circumference ? \n";

    cin >> circleCircumference;

    const float PI = 3.14;

    float circleArea = (circleCircumference \* circleCircumference) / (4 \* PI);

    cout << "circle area is : " << circleArea;

#22 circle area inscribed in an isosceles triangle

  float triangleequalSides, trianglebase;

    cout << "Please enter triangle sides length ,1-triangleequalSides 2-  trianglebase? \n";

    cin >> triangleequalSides;

    cin >> trianglebase;

    const double PI = 3.141592653589793;

    float circleArea = (PI \* trianglebase \* trianglebase / 4) \* ((2 \* triangleequalSides - trianglebase) / (2 \* triangleequalSides + trianglebase));

    cout << fixed << setprecision(3); // 4 أرقام بعد الفاصلة

    cout << "circle area is : " << circleArea;

#31 Power 2,3,4

  float number;

    cout << "Please enter  number : \n";

    cin >> number;

    cout << "power 2: " << number \* number << "\n";

    cout << "power 3: " << number \* number \* number << "\n";

    cout << "power 4: " << number \* number \* number \* number << "\n";

#35 Piggy Bank Calculator

 float number;

    short penny, nickel, dime, quarter, dollar;

    const short Penny = 1, Nickel = 5, Dime = 10, Quarter = 25, Dollar = 100;

    cout << "Please enter  pennies  : \n";

    cin >> penny;

    cout << "Please enter  nickels  : \n";

    cin >> nickel;

    cout << "Please enter  dimes  : \n";

    cin >> dime;

    cout << "Please enter  quarter  : \n";

    cin >> quarter;

    cout << "Please enter  dollar  : \n";

    cin >> dollar;

    float totalPennies = penny \* Penny + dime \* Dime + nickel \* Nickel + quarter \* Quarter + dollar \* Dollar;

    float totalDollars = totalPennies / 100;

    cout << "Total Pennies : " << totalPennies << "\n";

    cout << "TotalDollars: " << totalDollars << "\n";

#39 Pay reminder

float number;

    short cashPaid, totalBill;

    cout << "Please enter  cash Paid  : \n";

    cin >> cashPaid;

    cout << "Please enter  Total Bill   : \n";

    cin >> totalBill;

    float reminder = cashPaid - totalBill;

    cout << "reminder : " << reminder << "\n";

#40 Service fee and Sales Tax

 float billValue;

    cout << "Please enter  Bill Value   : \n";

    cin >> billValue;

    billValue += (billValue \* 0.1);

    billValue += (billValue \* 0.16);

    cout << "After Service and tax fee , bill will be : " << billValue << "\n";

#42 Task Duration in seconds

   float numOfDays, numOfHours, numOfMinutes, numOfSeconds;

    cout << "Please enter number of days    : \n";

    cin >> numOfDays;

    cout << "Please enter number of hours    : \n";

    cin >> numOfHours;

    cout << "Please enter number of minutes    : \n";

    cin >> numOfMinutes;

    cout << "Please enter number of seconds    : \n";

    cin >> numOfSeconds;

    float totalSecondsFromDays = numOfDays \* 24 \* 60 \* 60;

    float totalSecondsFromHours = numOfHours \* 60 \* 60;

    float totalSecondsFromMinutes = numOfMinutes \* 60;

    float totalSeconds = totalSecondsFromDays + totalSecondsFromHours + totalSecondsFromMinutes + numOfSeconds;

    cout << "Total Seconds : " << totalSeconds;

#43 seconds to Days ,Hours, Minutes ,Seconds

    const float secondsPerDay = 24 \* 60 \* 60;

    const float secondsPerHour = 60 \* 60;

    const float secondsPerMinute = 60;

    float totalSeconds;

    float reminder;

    float numOfSeconds;

    cout << "Please enter totalSeconds   : \n ";

    cin >> totalSeconds;

    float numOfDays = floor(totalSeconds / secondsPerDay);

    reminder = fmod(totalSeconds, secondsPerDay);

    float numOfHour = floor(reminder / secondsPerHour);

    reminder = fmod(reminder, secondsPerHour);

    float numOfMinutes = floor(reminder / secondsPerMinute);

    reminder = fmod(reminder, secondsPerMinute);

    numOfSeconds = reminder;

    cout << numOfDays << " : " << numOfHour << ": " << numOfMinutes << ": " << numOfSeconds;

#47 Loan installment months

    float loanAmount, monthlyPayment;

    cout << "Please enter Loan Amounts   : \n ";

    cin >> loanAmount;

    cout << "Please enter  monthly payment   : \n ";

    cin >> monthlyPayment;

    float monthToSettleLoan = loanAmount / monthlyPayment;

    cout << "Total Months : " << monthToSettleLoan << endl;

#48Monthly loan installment

    float loanAmount, numOfMonths;

    cout << "Please enter Loan Amounts   : \n ";

    cin >> loanAmount;

    cout << "Please enter  num of months   : \n ";

    cin >> numOfMonths;

    float loanPerMonth = loanAmount / numOfMonths;

    cout << "Loan Per Month : " << loanPerMonth << endl;

Use Math

#16 Rectangle Area Through Diagonal and side area =🡺using pow

  double rectangleSide;

     double rectangleDiagonal;

     cout << "Please enter rectangleSide   : \n ";

     cin >> rectangleSide;

     cout << "Please enter rectangleDiagonal  : \n ";

     cin >> rectangleDiagonal;

     double area = rectangleSide \* sqrt(pow(rectangleDiagonal, 2) - pow(rectangleSide, 2));

     cout << "Area of Rectangle : " << area << endl;

#18 circle area =🡺using ceil

   double circleRadius;

     const float PI = 3.144444;

     cout << "Please enter radius   : \n ";

     cin >> circleRadius;

     double area = ceil(PI \* pow(circleRadius, 2));

     cout << "Area of circle  : " << area << endl;

#19 circle area through diameter =🡺 using ceil

 double circleDiameter;

     const float PI = 3.144444;

     cout << "Please enter diameter   : \n ";

     cin >> circleDiameter;

     double area = ceil(PI \* pow(circleDiameter / 2, 2));

     cout << "Area of circle  : " << area << endl;

#20circle area inscribed in the square =🡺 using ceil

double squareSide;

     double rectangleDiagonal;

     const float PI = 3.144444;

     cout << "Please enter square side   : \n ";

     cin >> squareSide;

     double area = ceil(PI \* pow(squareSide / 2, 2));

     cout << "Area of circle inscribed in the square is  : " << area << endl;

#21 circle area along the circumference 🡺using floor

  double circleCircumference;

     const float PI = 3.144444;

     cout << "Please enter circumference   : \n ";

     cin >> circleCircumference;

     double area = floor(pow(circleCircumference, 2) / (4 \* PI));

     cout << "Area of circle  : " << area << endl;

#22 circle area inscribed in an isosceles 🡺using floor

  double triangleSides;

     double triangleBase;

     const float PI = 3.144444;

     cout << "Please enter triangleSides   : \n ";

     cin >> triangleSides;

     cout << "Please enter triangleBase   : \n ";

     cin >> triangleBase;

     double area = PI \* pow(triangleBase, 2) / 4 \* ((2 \* triangleSides - triangleBase) / (2 \* triangleSides + triangleBase));

     area = floor(area);

     cout << "Area of circle  : " << area << endl;

#23 circle area **circle Described Around an Arbitrary Triangle =🡺using round**

     double triangleSideA, triangleSideB, triangleSideC;

     double triangleBase;

     const float PI = 3.144444;

     cout << "Please enter triangleSides A,B,C  in order   : \n ";

     cin >> triangleSideA;

     cin >> triangleSideB;

     cin >> triangleSideC;

     double HalfOftriangleCircumference = (triangleSideA + triangleSideB + triangleSideC) / 2;

     double radius = triangleSideA \* triangleSideB \* triangleSideC / (4 \* sqrt(HalfOftriangleCircumference \* (HalfOftriangleCircumference - triangleSideA) \* (HalfOftriangleCircumference - triangleSideB) \* (HalfOftriangleCircumference - triangleSideC)));

     double area = PI \* pow(radius, 2);

     area = round(area);

     cout << "Area of circle  : " << area << endl;

#31 Pow of 2,3,4 ==🡺 using round\

     double number;

     cout << "Please enter number   : \n ";

     cin >> number;

     cout << number << "pow 2 is :" << round(pow(number, 2)) << endl;

     cout << number << "pow 3 is :" << round(pow(number, 3)) << endl;

     cout << number << "pow 4 is :" << round(pow(number, 4)) << endl;

#32 Pow of M =🡺 using round

 double number;

     double power;

     double result = 1;

     cout << "Please enter number   : \n ";

     cin >> number;

     cout << "Please enter  power    : \n ";

     cin >> power;

     for (int i = 0; i < power; i++)

     {

          result \*= number;

     }

     cout << number << " pow " << power << " is :" << round(result) << endl;

or

     double number;

     double power;

     cout << "Please enter number   : \n ";

     cin >> number;

     cout << "Please enter  power    : \n ";

     cin >> power;

     cout << number << " pow " << power << " is :" << round(pow(number, power)) << endl;

#42 Task duration in seconds =🡺 using round

 float numOfDays, numOfHours, numOfMinutes, numOfSeconds;

     cout << "Please enter number of days    : \n";

     cin >> numOfDays;

     cout << "Please enter number of hours    : \n";

     cin >> numOfHours;

     cout << "Please enter number of minutes    : \n";

     cin >> numOfMinutes;

     cout << "Please enter number of seconds    : \n";

     cin >> numOfSeconds;

     float totalSecondsFromDays = numOfDays \* 24 \* 60 \* 60;

     float totalSecondsFromHours = numOfHours \* 60 \* 60;

     float totalSecondsFromMinutes = numOfMinutes \* 60;

     float totalSeconds = totalSecondsFromDays + totalSecondsFromHours + totalSecondsFromMinutes + numOfSeconds;

     cout << "Total Seconds : " << round(totalSeconds);

#43 seconds to Days ,Hours, Minutes ,Seconds==🡺 floor

    const float secondsPerDay = 24 \* 60 \* 60;

    const float secondsPerHour = 60 \* 60;

    const float secondsPerMinute = 60;

    float totalSeconds;

    float reminder;

    float numOfSeconds;

    cout << "Please enter totalSeconds   : \n ";

    cin >> totalSeconds;

    float numOfDays = floor(totalSeconds / secondsPerDay);

    reminder = fmod(totalSeconds, secondsPerDay);

    float numOfHour = floor(reminder / secondsPerHour);

    reminder = fmod(reminder, secondsPerHour);

    float numOfMinutes = floor(reminder / secondsPerMinute);

    reminder = fmod(reminder, secondsPerMinute);

    numOfSeconds = reminder;

    cout << numOfDays << " : " << numOfHour << ": " << numOfMinutes << ": " << numOfSeconds;

Use Functions

#14

void swapProcedure(short &a, short &b)

{

    short temp = 0;

    temp = a;

    a = b;

    b = temp;

}

int main()

{

    short a, b;

    cout << "Please enter the first number  A ? \n";

    cin >> a;

    cout << "Please enter the first number   B? \n";

    cin >> b;

    cout << "Output : \n";

    cout << a << "\n"

         << b << "\n \n";

    swapProcedure(a, b);

    cout << a << "\n"

         << b << "\n";

    return 0;

}

#15

short rectangleArea(short width, short length)

{

    short rectangleArea = width \* length;

    return rectangleArea;

}

int main()

{

    short a, b;

    short width, length;

    cout << "Please enter  width ? \n";

    cin >> width;

    cout << "Please enter  length? \n";

    cin >> length;

    cout << "Rectangle area is :" << rectangleArea(width, length);

    return 0;

}

#16

double rectangleArea(double rectangleDiagonal, short rectangleSide)

{

    double area = rectangleSide \* sqrt(pow(rectangleDiagonal, 2) - pow(rectangleSide, 2));

    return area;

}

int main()

{

    double rectangleSide;

    double rectangleDiagonal;

    cout << "Please enter rectangleSide   : \n ";

    cin >> rectangleSide;

    cout << "Please enter rectangleDiagonal  : \n ";

    cin >> rectangleDiagonal;

    double area = rectangleArea(rectangleDiagonal, rectangleSide);

    cout << "Area of Rectangle : " << area << endl;

    return 0;

}

#18

double circleArea(double radius)

{

    const float PI = 3.14;

    double area = ceil(PI \* pow(radius, 2));

    return area;

}

int main()

{

    double circleRadius;

    cout << "Please enter radius   : \n ";

    cin >> circleRadius;

    double area = circleArea(circleRadius);

    cout << "Area of circle  : " << area << endl;

    return 0;

}

#19

double circleArea(double diameter)

{

    const float PI = 3.14;

    double radius = diameter / 2;

    double area = PI \* pow(radius, 2);

    return area;

}

int main()

{

    double diameter;

    cout << "Please enter  circle  diameter ? \n";

    cin >> diameter;

    // f==>float

    cout << "circle area is : " << circleArea(diameter);

    return 0;

}

#20

float circleArea(float squareSideLength)

{

    const float PI = 3.14;

    float circleArea = (PI \* squareSideLength \* squareSideLength) / 4;

    return circleArea;

}

int main()

{

    float squareSideLength;

    cout << "Please enter  square side length ? \n";

    cin >> squareSideLength;

    const float PI = 3.14;

    float area = circleArea(squareSideLength);

    cout << "circle area is : " << area;

    return 0;

}

#21

float circleArea(float circleCircumference)

{

    const float PI = 3.14;

    float circleArea = (circleCircumference \* circleCircumference) / (4 \* PI);

    return circleArea;

}

int main()

{

    float circleCircumference;

    cout << "Please enter  circle circumference ? \n";

    cin >> circleCircumference;

    float area = circleArea(circleCircumference);

    cout << "circle area is : " << area;

    return 0;

}

#22

float circleArea(float triangleequalSides, float trianglebase)

{

    const float PI = 3.14;

    float circleArea = (PI \* trianglebase \* trianglebase / 4) \* ((2 \* triangleequalSides - trianglebase) / (2 \* triangleequalSides + trianglebase));

    return circleArea;

}

int main()

{

    float triangleequalSides, trianglebase;

    cout << "Please enter triangle sides length ,1-triangleequalSides 2-  trianglebase? \n";

    cin >> triangleequalSides;

    cin >> trianglebase;

    float area = circleArea(triangleequalSides, trianglebase);

    cout << fixed << area; // 4 أرقام بعد الفاصلة

    cout << "circle area is : " << area;

    return 0;

}

#23

double circleArea(double triangleSideA, double triangleSideB, double triangleSideC)

{

    const float PI = 3.14;

    double HalfOftriangleCircumference = (triangleSideA + triangleSideB + triangleSideC) / 2;

    double radius = triangleSideA \* triangleSideB \* triangleSideC / (4 \* sqrt(HalfOftriangleCircumference \* (HalfOftriangleCircumference - triangleSideA) \* (HalfOftriangleCircumference - triangleSideB) \* (HalfOftriangleCircumference - triangleSideC)));

     double area = PI \* pow(radius, 2);

    return area;

}

int main()

{

     double triangleSideA, triangleSideB, triangleSideC;

     double triangleBase;

     cout << "Please enter triangleSides A,B,C  in order   : \n ";

     cin >> triangleSideA;

     cin >> triangleSideB;

     cin >> triangleSideC;

     double HalfOftriangleCircumference = (triangleSideA + triangleSideB + triangleSideC) / 2;

     double area=circleArea(triangleSideA,triangleSideB,triangleSideC);

     cout << "Area of circle  : " << area << endl;

    return 0;

}

#31

void power234(float number)

{

    cout << "power 2: " << pow(number, 2) << "\n";

    cout << "power 3: " << pow(number, 3) << "\n";

    cout << "power 4: " << pow(number, 4) << "\n";

}

int main()

{

    float number;

    cout << "Please enter  number : \n";

    cin >> number;

    power234(number);

    return 0;

}

#32

double powerOfN(double power, double number)

{

    double result = 1;

    for (int i = 0; i < power; i++)

    {

        result \*= number;

    }

    return result;

}

int main()

{

    double number;

    double power;

    double result = 1;

    cout << "Please enter number   : \n ";

    cin >> number;

    cout << "Please enter  power    : \n ";

    cin >> power;

    result = powerOfN(power, number);

    cout << number << " pow " << power << " is :" << round(result) << endl;

    return 0;

}

#42

float totalSeconds(float numOfDays, float numOfHours, float numOfMinutes, float numOfSeconds)

{

    float totalSecondsFromDays = numOfDays \* 24 \* 60 \* 60;

    float totalSecondsFromHours = numOfHours \* 60 \* 60;

    float totalSecondsFromMinutes = numOfMinutes \* 60;

    float totalSeconds = totalSecondsFromDays + totalSecondsFromHours + totalSecondsFromMinutes + numOfSeconds;

    return totalSeconds;

}

int main()

{

    float numOfDays, numOfHours, numOfMinutes, numOfSeconds;

    cout << "Please enter number of days    : \n";

    cin >> numOfDays;

    cout << "Please enter number of hours    : \n";

    cin >> numOfHours;

    cout << "Please enter number of minutes    : \n";

    cin >> numOfMinutes;

    cout << "Please enter number of seconds    : \n";

    cin >> numOfSeconds;

    float result = totalSeconds(numOfDays, numOfHours, numOfMinutes, numOfSeconds);

    cout << "Total Seconds : " << result;

    return 0;

}

#43

void totalSecondsCalc(float totalseconds)

{

    const float secondsPerDay = 24 \* 60 \* 60;

    const float secondsPerHour = 60 \* 60;

    const float secondsPerMinute = 60;

    float reminder;

    float numOfSeconds;

    float numOfDays = floor(totalseconds / secondsPerDay);

    reminder = fmod(totalseconds, secondsPerDay);

    float numOfHour = floor(reminder / secondsPerHour);

    reminder = fmod(reminder, secondsPerHour);

    float numOfMinutes = floor(reminder / secondsPerMinute);

    reminder = fmod(reminder, secondsPerMinute);

    numOfSeconds = reminder;

    cout << numOfDays << " : " << numOfHour << ": " << numOfMinutes << ": " << numOfSeconds;

}

int main()

{

    float totalSeconds;

    cout << "Please enter totalSeconds   : \n ";

    cin >> totalSeconds;

    totalSecondsCalc(totalSeconds);

    return 0;

}