#include <iostream>

#include <cmath>

using namespace std;

double calculateCircleArea(double radius) {

return M\_PI \* pow(radius, 2);

}

int main() {

double radius;

cout << "Enter the radius of the circle: ";

cin >> radius;

double area = calculateCircleArea(radius);

cout << "The area of the circle is: " << area << endl;

return 0;

}

#include <iostream>

#include <cmath>

using namespace std;

double calculateCircleCircumference(double radius) {

return 2 \* M\_PI \* radius;

}

int main() {

double radius;

cout << "Enter the radius of the circle: ";

cin >> radius;

double circumference = calculateCircleCircumference(radius);

cout << "The circumference of the circle is: " << circumference << endl;

return 0;

}

#include <iostream>

using namespace std;

double calculateRectangleArea(double length, double width) {

return length \* width;

}

int main() {

double length, width;

cout << "Enter the length of the rectangle: ";

cin >> length;

cout << "Enter the width of the rectangle: ";

cin >> width;

double area = calculateRectangleArea(length, width);

cout << "The area of the rectangle is: " << area << endl;

return 0;

}

4…

#include <iostream>

#include <cmath>

using namespace std;

double calculateSphereVolume(double radius) {

return (4.0 / 3.0) \* M\_PI \* pow(radius, 3);

}

int main() {

double radius;

cout << "Enter the radius of the sphere: ";

cin >> radius;

double volume = calculateSphereVolume(radius);

cout << "The volume of the sphere is: " << volume << endl;

return 0;

}

5.

Find surface area of sphere:

Prompt: Write a program that takes the radius of a sphere as input and calculates its surface area.

Formula: SA = 4πr²

#include <iostream>

#include <cmath>

using namespace std;

double calculateSphereSurfaceArea(double radius) {

return 4 \* M\_PI \* pow(radius, 2);

}

int main() {

double radius;

cout << "Enter the radius of the sphere: ";

cin >> radius;

double surfaceArea = calculateSphereSurfaceArea(radius);

cout << "The surface area of the sphere is: " << surfaceArea << endl;

return 0;

}

6.

#include <iostream>

using namespace std;

double calculateSquareArea(double sideLength) {

return sideLength \* sideLength;

}

int main() {

double sideLength;

cout << "Enter the side length of the square: ";

cin >> sideLength;

double area = calculateSquareArea(sideLength);

cout << "The area of the square is: " << area << endl;

return 0;

}

7..

#include <iostream>

using namespace std;

double calculateTriangleArea(double base, double height) {

return 0.5 \* base \* height;

}

int main() {

double base, height;

cout << "Enter the base of the right-angled triangle: ";

cin >> base;

cout << "Enter the height of the right-angled triangle: ";

cin >> height;

double area = calculateTriangleArea(base, height);

cout << "The area of the right-angled triangle is: " << area << endl;

return 0;

}

8.

#include <iostream>

#include <cmath>

using namespace std;

double calculateEquilateralTriangleArea(double sideLength) {

return (sqrt(3) / 4) \* pow(sideLength, 2);

}

int main() {

double sideLength;

cout << "Enter the side length of the equilateral triangle: ";

cin >> sideLength;

double area = calculateEquilateralTriangleArea(sideLength);

cout << "The area of the equilateral triangle is: " << area << endl;

return 0;

}

9.

#include <iostream>

using namespace std;

double calculateRectanglePerimeter(double length, double width) {

return 2 \* (length + width);

}

int main() {

double length, width;

cout << "Enter the length of the rectangle: ";

cin >> length;

cout << "Enter the width of the rectangle: ";

cin >> width;

double perimeter = calculateRectanglePerimeter(length, width);

cout << "The perimeter of the rectangle is: " << perimeter << endl;

return 0;

}

10.

#include <iostream>

using namespace std;

double calculateTriangleArea(double base, double height) {

return 0.5 \* base \* height;

}

int main() {

double base, height;

cout << "Enter the base of the triangle: ";

cin >> base;

cout << "Enter the height of the triangle: ";

cin >> height;

double area = calculateTriangleArea(base, height);

cout << "The area of the triangle is: " << area << endl;

return 0;

}

11.

#include <iostream>

using namespace std;

double calculateSimpleInterest(double principal, double rate, double time) {

return (principal \* rate \* time) / 100;

}

int main() {

double principal, rate, time;

cout << "Enter the principal amount: ";

cin >> principal;

cout << "Enter the interest rate (in percentage): ";

cin >> rate;

cout << "Enter the time period (in years): ";

cin >> time;

double simpleInterest = calculateSimpleInterest(principal, rate, time);

cout << "The simple interest is: " << simpleInterest << endl;

return 0;

}

12.

#include <iostream>

#include <cmath>

using namespace std;

double calculateCompoundInterest(double principal, double rate, int frequency, double time) {

return principal \* pow((1 + rate / (frequency \* 100)), frequency \* time) - principal;

}

int main() {

double principal, rate, time;

int frequency;

cout << "Enter the principal amount: ";

cin >> principal;

cout << "Enter the interest rate (in percentage): ";

cin >> rate;

cout << "Enter the compounding frequency per year: ";

cin >> frequency;

cout << "Enter the time period (in years): ";

cin >> time;

double compoundInterest = calculateCompoundInterest(principal, rate, frequency, time);

cout << "The compound interest is: " << compoundInterest << endl;

return 0;

}