**Activity 2.01: Merging Two Circles**

**Solution:**1. Create a value **object**, **Circle**, with an immutable radius:

public struct Circle

{

public double Radius { get; }

public Circle(double radius)

{

Radius = radius;

}

1. Add a property to calculate the area:

public double Area => Math.PI \* Radius \* Radius;

1. To add the two circles' areas together, implement the plus (**+**) operator:

public static Circle operator +(Circle circle1, Circle circle2)

{

var newArea = circle1.Area + circle2.Area;

var newRadius = Math.Sqrt((newArea / Math.PI));

return new Circle(newRadius);

}

}

4. Add a **Solution** class with a **Main** method to demonstrate that the operator works:

public static class Solution

{

public static void Main()

{

var circle1 = new Circle(3);

var circle2 = new Circle(3);

var circle3 = circle1 + circle2;

Console.WriteLine($"Adding circles of radius of {circle1.

Radius} and {circle2.Radius} " + $"results in a new circle with a radius

{circle3.Radius}");

}

}

5. Run the **Main** method and the result should be as follows:

Adding circles of radius of 3 and 3 results in a new circle with a

radius 4.242640687119285

In this activity, you created classes and override operators to solve the following mathematics problem: A portion of pizza dough can be used to create two circular pizza bites each with a radius of three centimeters. What would be the radius of a single pizza bite made from the same amount of dough? You can assume that all the pizza bites are the same thickness.