

Geometric Shapes

You will be assigned one of the geometric shapes listed below. You are to create a class, tester program, and application for your shape. These three files should be written similar to the way the rectangle class was created, tested, and implemented. The tester program should use all three constructors and all methods listed in the class. The application program should prompt the user for the dimensions of the shape and output the results. Sample answers are shown below.

1) Octagonal Prism

Length = 10	Height = 7	Volume = 3379.90	Surface Area = 1525.69
Length = 16.5	Height = 8.2	Volume = 10779.22	Surface Area = 3711.48

2) Square Pyramid

Length = 10	Height = 7	Volume = 233.33	Surface Area = 272.05
Length = 16.5	Height = 8.2	Volume = 744.15	Surface Area = 656.10

3) Triangular Pyramid

Length = 10	Height = 7	Volume = 101.04	Surface Area = 156.88
Length = 16.5	Height = 8.2	Volume = 322.23	Surface Area = 352.59

4) Cone

Radius = 3	Height = 6	Volume = 56.55	Surface Area = 91.50
Radius = 15	Height = 20	Volume = 4712.39	Surface Area = 1884.95

5) Rectangular Prism

Length = 6	Width = 5	Height = 3	Volume = 90	Surface Area = 126
Length = 2.5	Width = 1.5	Height = 2	Volume = 7.5	Surface Area = 23.5

6) Cylinder

Radius = 5	Height = 4	Volume = 314.16	Surface Area = 282.74
Radius = 101.5	Height = 25	Volume = 809136.82	Surface Area = 80674.46

7) Sphere

Radius = 2	Volume = 33.51	Surface Area = 50.27
Radius = 10	Volume = 4188.79	Surface Area = 1256.64

8) Triangle

Side1 = 3	Side2 = 4	Side3 = 5	Area = 6	Perimeter = 12
Side1 = 3.5	Side2 = 4.5	Side3 = 5.5	Area = 7.85	Perimeter = 13.5

9) Circle

Radius = 5	Area = 78.54	Circumference = 31.42
Radius = 101.5	Area = 32365.47	Circumference = 637.74

10) Square

Side = 3	Area = 9	Perimeter = 12
Side = 125.5	Area = 15750.25	Perimeter = 502