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SHAPE SIMULATOR

NISARG SHAH
DIV2 - S3

SHAPES

2 - Dimensional (Polygon)

3 - Dimensional Objects

POLYGONS

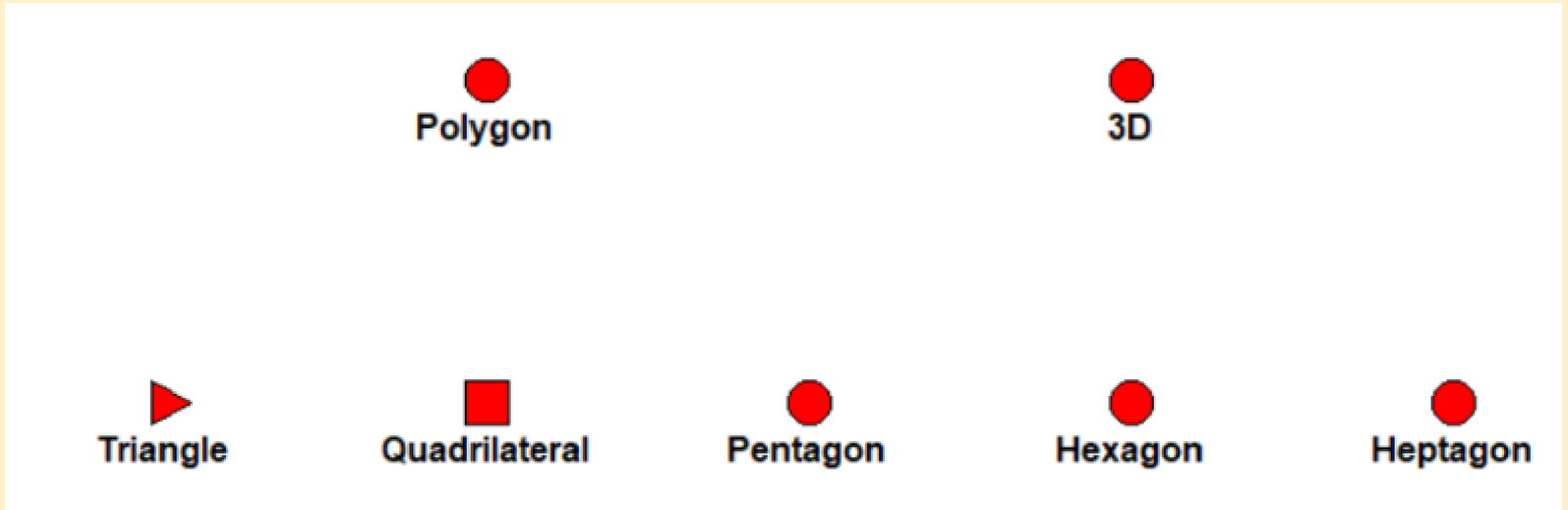
Triangle

Quadrilateral

Pentagon

Hexagon

Heptagon



TRIANGLES EXAMPLES

Examples.txt

```
1   Equilateral Triangle : 125
2
3   Right-angled Triangle : Base : 90
4                           Height : 120
5
6   Scalene Triangle : SSS : 150 160 170 ;
7                      SAS : 90 124deg 120
8
9   Isoceles Triangle : 180 40deg 120 => common side
```

Types of Triangle ⟶ Choose

Polygon

3D

Triangle

Quadrilateral

Pentagon

Hexagon

Heptagon

Equilateral Triangle

Right Angled Triangle

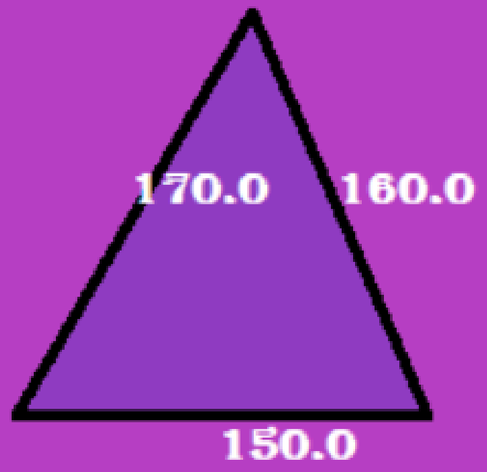
Scalene Triangle

Isosceles Triangle

Example Triangle

ANGLES => A : 53.86 ; B : 59.59 ; C : 66.46

SIDES => AB : 170.0 ; BC : 150.0 ; AC : 160.0



SCALENE TRIANGLE

AREA => 10998.181667894016 SQUARE-UNITS

PERIMETER => 480.0 UNITS

QUADRILATERAL EXAMPLES

Examples.txt

```
11    Parallelogram :  130 230 [illegible]
12
13    Rhombus : 120 80deg
14
15    Square : 175 50deg
16
17    Rectangle : 130 230
18
19    Kite : 139.943 101.823 104.036 1 61.928
20
21    Trapezuim : 160 120 78 120 70deg 68.961deg
22
```

Types of Quadrilateral ⟶ Choose

Polygon

3D

Triangle

Quadrilateral

Pentagon

Hexagon

Heptagon

Parallelogram

Rhombus

Square

Rectangle

Kite

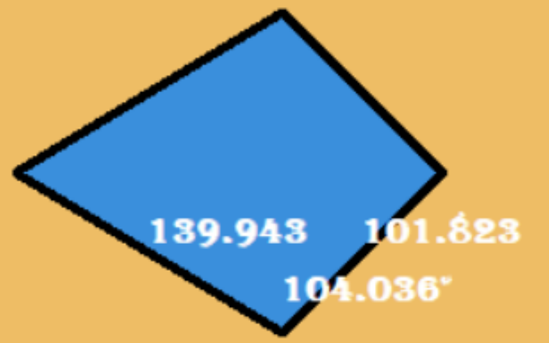
Trapezium

Example Quadrilateral

AREA => 13823.917229891089 SQUARE-UNITS

PERIMETER => 483.53200000000004 UNITS

DIAGONAL LENGHTS => 143.99946756151564, 191.9995603315075 UNITS



KITE

ANGLES => ANGLE INCLUDED BETWEEN SIDES OF LENGTH 139.943 AND 101.823 IS 104.036°
ANGLE INCLUDED BETWEEN TWO SIDES OF LENGTH 139.943 IS 61.928°
ANGLE INCLUDED BETWEEN TWO SIDES OF LENGTH 101.823 IS 90.0°

PENTAGON EXAMPLES

Examples.txt

```
22
23    Regular Pentagon : 150
24
25    Irregular Pentagon : 120 121.2 126.6 99.6 79.2 118.09deg 70.08deg 139.86deg 97.35deg
```

Types of Pentagon → Choose

Polygon

3D

Triangle

Quadrilateral

Pentagon

Hexagon

Heptagon

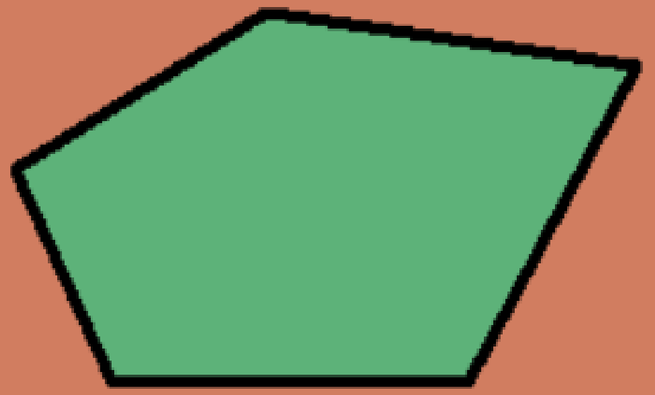
Regular Pentagon

Irregular Pentagon

Example Pentagon

AREA => 18620 SQUARE-UNITS

PERIMETER => 316.08050678905033 UNITS



IRREGULAR PENTAGON

HEXAGON EXAMPLES

Examples.txt

```
26
27    Regular hexagon : 150
28
29    Irregular Hexagon : 100 140 160 80 150 134 148deg 112deg 106deg 125deg 144deg
```

Types of Hexagon → Choose

Polygon

3D

Triangle

Quadrilateral

Pentagon

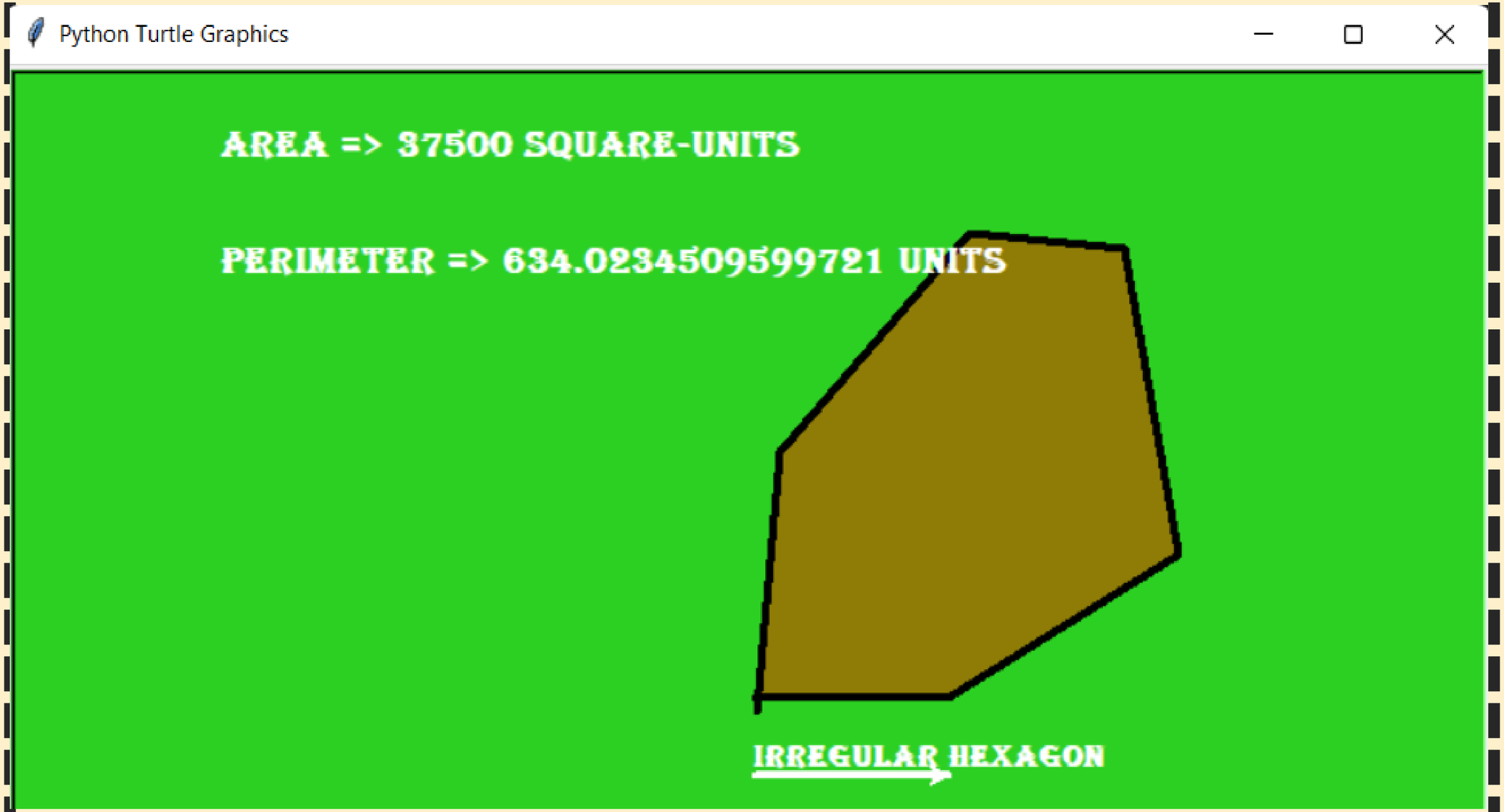
Hexagon

Heptagon

Regular Hexagon

Irregular Hexagon

Example Hexagon



HEPTAGON

EXAMPLES

Examples.txt

```
30
31    Regular Heptagon : 150
```

Types of Heptagon → Choose

Polygon

3D

Triangle

Quadrilateral

Pentagon

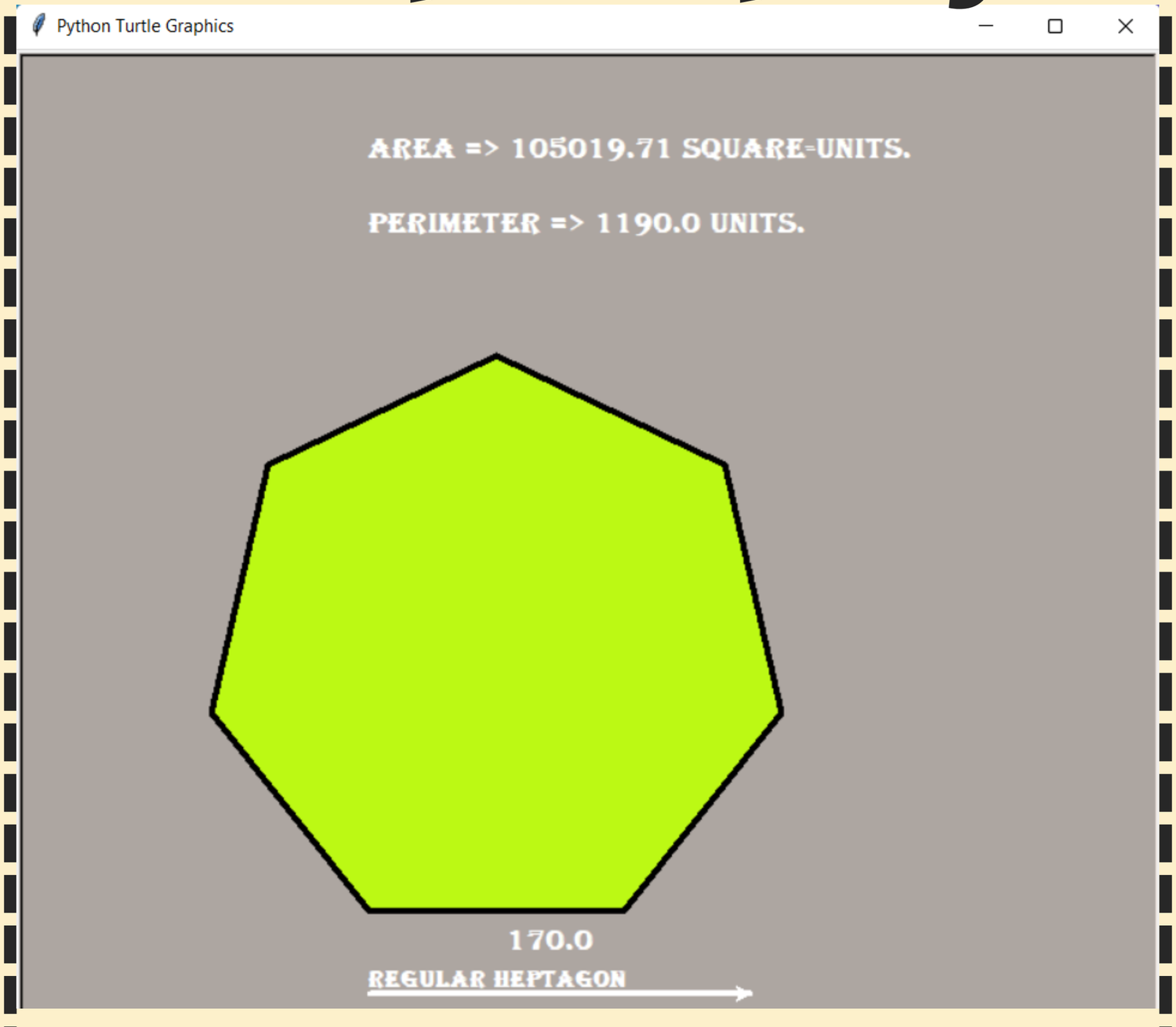
Hexagon

Heptagon

Regular Heptagon

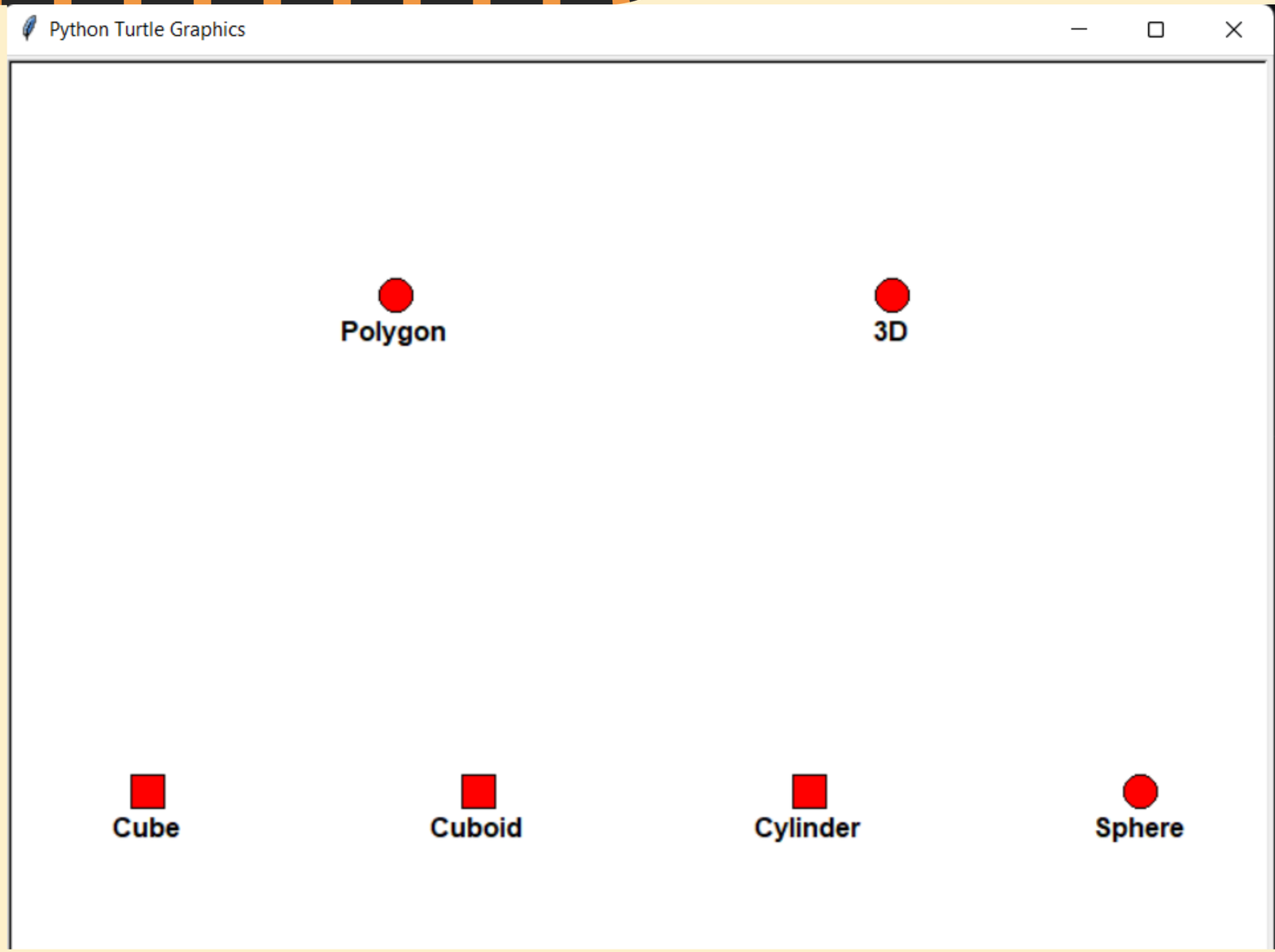
Irregular Heptagon

Example Heptagon



3 DIMENSIONAL

- Cube
- Cuboid
- Sphere
- Cylinder



CUBE

SURFACE AREA OF CUBE = 6(SIDE)^2 IN SQUARE UNITS

VOLUME OF CUBE = (SIDE)^3 CUBIC UNITS

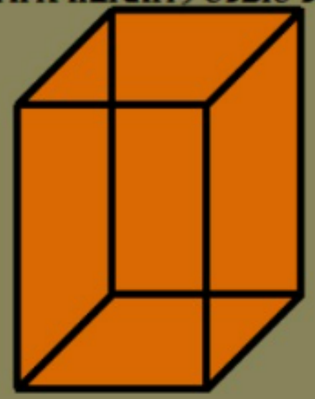
AREA OF ONE FACE = AREA OF A SQUARE = (SIDE)^2

LATERAL SURFACE AREA (EXCLUDING THE TOP AND BOTTOM FACES) = 4 × AREA OF ONE FACE LSA = 4(SIDE)^2

CUBOID

SURFACE AREA OF CUBOID = 2 X (LENGTH X WIDTH) + (WIDTH X HEIGHT) + (LENGTH X HEIGHT) IN SQUARE UNITS

VOLUME OF CUBOID = (LENGTH X WIDTH X HEIGHT) CUBIC UNITS



AREA OF ONE FACE = AREA OF A RECTANGLE SQUARE UNITS

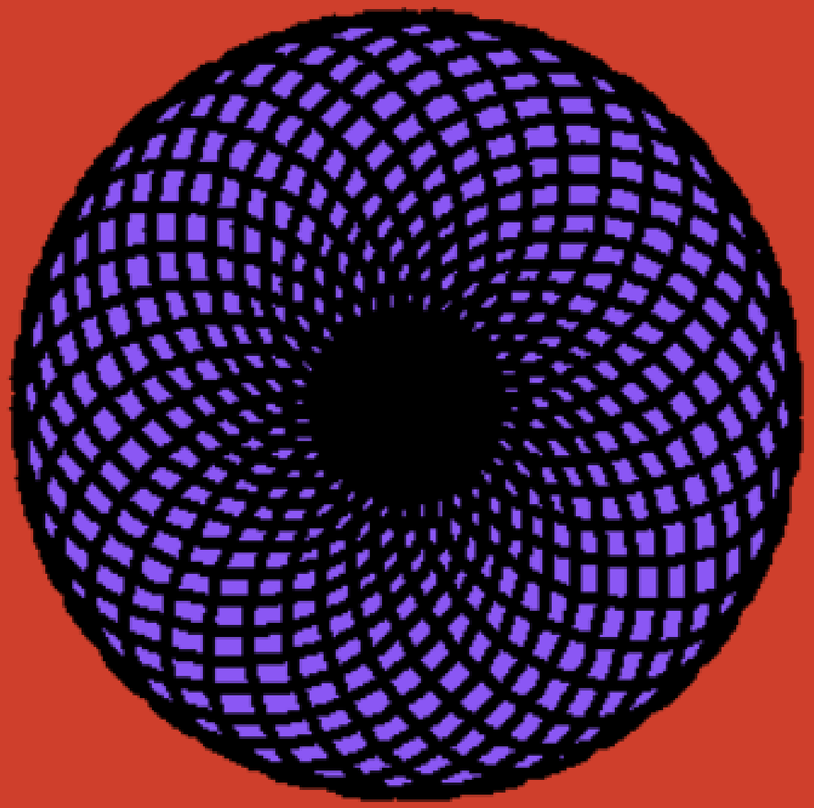
PERIMETER = 4(LENGTH + WIDTH + HEIGHT) UNITS

CYLINDER

CURVED SURFACE AREA = 2 X π X RADIUS X HEIGHT SQUARE UNITS

TOTAL SURFACE AREA, A = 2 X π X RADIUS X (RADIUS + HEIGHT) SQUARE UNITS

THE SURFACE AREA OF A SPHERE(SA) = 4π(RADIUS)^2 SQUARE UNITS



SPHERE

VOLUME OF CUBE = (4/3) X π X (RADIUS)^3 CUBIC UNITS

Thank You

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