**Question 1:**

**Text

Description automatically generated**

**Text

Description automatically generated with medium confidence**

**Graphical user interface

Description automatically generated with medium confidence**

****

**TRANSCRIBED**

PS C:\Users\Fahad\Desktop\212> cd "c:\Users\Fahad\Desktop\212\" ; if ($?) { g++ fahadFaruqiTakeHomeTestQ1.cpp -o fahadFaruqiTakeHomeTestQ1 } ; if ($?) { .\fahadFaruqiTakeHomeTestQ1 }

------------------------------------------------------------------------------

Name: Fahad Faruqi

FILE: fahadFaruqiTakeHomeTestQ1.cpp DATE: Nov 8 2022

------------------------------------------------------------------------------

Complex class created

Complex class created

Complex class created

Complex class created

Complex class created

Complex class created

Complex class created

Complex class created

Complex class created

Complex class created

Complex class created

Complex class created

Complex class created

Complex class created

Complex class created

Complex class copied

Complex class created

Complex class destructed

Complex class destructed

Complex class copied

Complex class created

Complex class destructed

Complex class destructed

Complex class copied

Complex class created

Complex class destructed

Complex class destructed

Complex class copied

Complex class created

Complex class destructed

Complex class destructed

Complex class copied

Complex class created

Complex class destructed

Complex class destructed

\*\*Z\_ARRAY VALUES (X+Y)\*\*

Real #: 0 Imaginary #: 0

Real #: 0 Imaginary #: 0

Real #: 0 Imaginary #: 0

Real #: 0 Imaginary #: 0

Real #: 0 Imaginary #: 0

Complex class copied

Complex class created

Complex class destructed

Complex class destructed

Complex class copied

Complex class created

Complex class destructed

Complex class destructed

Complex class copied

Complex class created

Complex class destructed

Complex class destructed

Complex class copied

Complex class created

Complex class destructed

Complex class destructed

Complex class copied

Complex class created

Complex class destructed

Complex class destructed

\*\*Z\_ARRAY VALUES (X\*Y)\*\*

Real #: 0 Imaginary #: -2

Real #: 0 Imaginary #: -8

Real #: 0 Imaginary #: -18

Real #: 0 Imaginary #: -32

Real #: 0 Imaginary #: -50

Complex class created

Complex class destructed

Complex class created

Complex class destructed

Complex class created

Complex class destructed

Complex class created

Complex class destructed

Complex class created

Complex class destructed

\*\*Z\_ARRAY VALUES (X\*10)\*\*

Real #: 10 Imaginary #: 10

Real #: 20 Imaginary #: 20

Real #: 30 Imaginary #: 30

Real #: 40 Imaginary #: 40

Real #: 50 Imaginary #: 50

Complex class copied

Complex class created

Complex class destructed

Complex class destructed

Complex class copied

Complex class created

Complex class destructed

Complex class destructed

Complex class copied

Complex class created

Complex class destructed

Complex class destructed

Complex class copied

Complex class created

Complex class destructed

Complex class destructed

Complex class copied

Complex class created

Complex class destructed

Complex class destructed

\*\*Z\_ARRAY VALUES (10\*X)\*\*

Real #: 10 Imaginary #: 10

Real #: 20 Imaginary #: 20

Real #: 30 Imaginary #: 30

Real #: 40 Imaginary #: 40

Real #: 50 Imaginary #: 50

Complex class created

Complex class created

Complex class created

\*\*NEW ARRAY ON HEAP VALUES\*\*

Real #: 0 Imaginary #: 0

Real #: 3 Imaginary #: -3

Real #: 6 Imaginary #: -6

Complex class destructed

Complex class destructed

Complex class destructed

Complex class destructed

Complex class destructed

Complex class destructed

Complex class destructed

Complex class destructed

Complex class destructed

Complex class destructed

Complex class destructed

Complex class destructed

Complex class destructed

Complex class destructed

Complex class destructed

Complex class destructed

Complex class destructed

Complex class destructed

**SCREENSHOTS OF CODE Q1:**

Text

Description automatically generatedText

Description automatically generatedText

Description automatically generatedText

Description automatically generated

**Question 2:**

Text

Description automatically generated

Text

Description automatically generated

**TRANSCRIBED:**

PS C:\Users\Fahad\Desktop\212> cd "c:\Users\Fahad\Desktop\212\" ; if ($?) { g++ fahadFaruqiTakeHomeTestQ2.cpp -o fahadFaruqiTakeHomeTestQ2 } ; if ($?) { .\fahadFaruqiTakeHomeTestQ2 }

------------------------------------------------------------------------------

Name: Fahad Faruqi

FILE: fahadFaruqiTakeHomeTestQ2.cpp DATE: Nov 8 2022

------------------------------------------------------------------------------

Shape constructed

Parameterized shape constructed

Shape constructed

Circle Parametrized Constructor Created

Shape constructed

Circle Parametrized Constructor Created

Shape constructed

Rectangle Parametrized Constructor Created

\*\*AREA\*\*

X: N/A

Amoeba: N/A

C1: 78.54

C2: 314.16

R: 32.00

\*\*INFO\*\*

(0,0)

Id: 0

(3,4)

Id: 1

(3,4)

Id: 2

Radius: 5, Area: 78.54

(15,20)

Id: 3

Radius: 10, Area: 314.16

(12,5)

Id: 4

Lenght: 8, Width: 4, Area: 32.00

\*\*DISTANCES\*\*

Shape copied

Shape copied

The distance between the two shapes is: 20.00

Shape destructed

Shape destructed

Distance from Origin for C1: 4.24

Distance from Origin for C2: 21.21

Distance from Origin for R: 16.97

\*\*TOTAL SHAPES\*\*

Shape copied

The total number of shapes are: 5

Shape destructed

Rectangle destructed

Shape destructed

Circle destructed

Shape destructed

Circle destructed

Shape destructed

Shape destructed

Shape destructed

**SCREENSHOTS OF CODE Q2**

**Text

Description automatically generatedText

Description automatically generatedText

Description automatically generatedText

Description automatically generated**