

## Proyecto final

Matería	Ingeniería de Software
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Integrantes <small>(paterno, materno, nombres)</small>	Nombres	Cuentas
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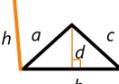
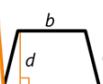
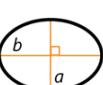
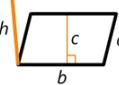
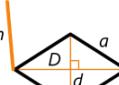
Equipo	09	Figura	TRIANGULO	Fecha	02/12/25
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Git	<a href="https://github.com/Aldo9K/unitec-is-261e09.git">https://github.com/Aldo9K/unitec-is-261e09.git</a>
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**Rubrica:**

4 pts.	5 pruebas unitarias de la capa de Aplicación del perímetro.
4 pts.	5 pruebas unitarias de la capa de Aplicación del área.
4 pts.	5 pruebas unitarias de la capa de Aplicación del volumen.
4 pts.	5 pruebas de integración de la capa de Aplicación del área y volumen.
4 pts.	5 pruebas de integración de la capa Web (error 404).
5 pts.	Código y <b>documento pdf</b> alojado en Git.

**Asignación del problema a resolver por equipo:**

<b>Equipo 01, 09</b> Triangulo	 $P = a + b + c$ $A = \frac{bd}{2}$ $V = Ah$	<b>Equipo 05, 13</b> Trapecio	 $P = 2a + b + c$ $A = \frac{d(b+c)}{2}$ $V = Ah$
<b>Equipo 02, 10</b> Rectangulo <small>n, es el numero de lados</small>	 $P = 2b + 2a$ $A = ab$ $V = Ah$	<b>Equipo 06, 14</b> Elipse	 $P = \pi(a+b)$ $A = \pi ab$ $V = Ah$
<b>Equipo 03, 11</b> Paralelogramo	 $P = 2(a+b)$ $A = bc$ $V = Ah$	<b>Equipo 07, 15</b> Polígono Regular <small>n, es el numero de lados</small>	 $P = nb$ $A = \frac{nba}{2}$ $V = Ah$
<b>Equipo 04, 12</b> Rombo	 $P = 4a$ $A = \frac{dD}{2}$ $V = Ah$	<b>Equipo 08, 16</b> Círculo	 $P = 2\pi r$ $A = \pi r^2$ $V = Ah$

**Comandos:**

```
# Ejecutar pruebas
dotnet test ./test\Application.UnitTest
dotnet test ./test\Application.IntegrationTest
dotnet test ./test\WebApp.IntegrationTest
```

```
git log
```

EVIDENCIAS

**Texto del código de las 20 pruebas (perímetro, área, volumen, integración y web)**

EXPLORER PROJECT Application.UnitTest

test > Application.UnitTest > UnitTestTriangulo.cs > UnitTestTriangulo > TestArea

```
1  using System;
2  using Xunit;
3  using Application;
4
5  namespace Application.UnitTesting
6  {
7      public class UnitTestTriangulo
8  {
9      [Theory]
10     // Params: a, b, c, esperado
11     [InlineData(3, 4, 5, 12)]
12     [InlineData(5, 12, 13, 30)]
13     [InlineData(10, 10, 10, 30)]
14     [InlineData(6, 8, 10, 24)]
15     [InlineData(7, 24, 25, 56)]
16     [InlineData(8, 15, 17, 40)]
17     [InlineData(9, 40, 41, 90)]
18     [InlineData(11, 60, 61, 132)]
19     [InlineData(12, 35, 37, 84)]
20     [InlineData(20, 21, 29, 70)]
21     [InlineData(2, 2, 3, 7)]
22     [InlineData(5, 5, 8, 18)]
23     [InlineData(10, 10, 5, 25)]
24     [InlineData(1.5, 2.5, 3.5, 7.5)]
25     [InlineData(0.5, 0.5, 0.5, 1.5)]
26     [InlineData(100, 100, 100, 300)]
27     [InlineData(15, 20, 25, 60)]
28     [InlineData(1, 1, 1, 3)]
29     [InlineData(50, 40, 30, 120)]
30     [InlineData(9, 9, 9, 27)]
31     public void TestPerimetro(double lado_a, double lado_b, double lado_c, double perimetro)
32     {
33         double resultado = Application.Figura261E09.Perimetro(lado_a, lado_b, lado_c);
34         Assert.Equal(resultado, perimetro, 1);
35     }
36
37     [Theory]
38     // Params: b (base), d (altura), esperado
39     [InlineData(10, 5, 25)]
40     [InlineData(4, 3, 6)]
41     [InlineData(6, 8, 24)]
42     [InlineData(5, 10, 25)]
43     [InlineData(20, 10, 100)]
44     [InlineData(8, 4, 16)]
45     [InlineData(3, 3, 4.5)]
46     [InlineData(12, 12, 72)]
47     [InlineData(100, 2, 100)]
48     [InlineData(1, 1, 0.5)]
49     [InlineData(7, 3, 10.5)]
50     [InlineData(9, 9, 40.5)]
51     [InlineData(15, 4, 30)]
52     [InlineData(2.5, 4, 5)]
53     [InlineData(5, 2.5, 6.25)]
54     [InlineData(10, 8.5, 2.5)]
55     [InlineData(50, 50, 1250)]
56     [InlineData(2, 100, 100)]
57     [InlineData(11, 5, 27.5)]
58     [InlineData(6, 6, 18)]
59     public void TestArea(double lado_b, double lado_d, double area)
60     {
61         double resultado = Application.Figura261E09.Area(lado_b, lado_d);
62
63         Assert.Equal (resultado, area, 3);
64
65     }
66 }
```

```

EXPLORER ... UnitTestPrismaTriangular.cs
PROJECT < src > test > Application.IntegrationT... > Application.UnitTesting > bin > obj & Application.UnitTesting.cs...
  < UnitTestPrismaTriangular.cs >
  < UnitTestPrismaTriangular.cs > Application.UnitTesting.cs > Testvolumen
    1 using System;
    2 using Xunit;
    3 using Application;
    4
    5 namespace Application.UnitTesting
    6 {
    7     [Theory]
    8     // Params: area, hPrisma, esperado (Area * hPrisma)
    9     [InlineData(25, 10, 250)]
    10    [InlineData(6, 5, 30)]
    11    [InlineData(24, 2, 48)]
    12    [InlineData(25, 4, 100)]
    13    [InlineData(100, 1, 100)]
    14    [InlineData(16, 10, 160)]
    15    [InlineData(4.5, 2, 9)]
    16    [InlineData(72, 10, 720)]
    17    [InlineData(100, 5, 500)]
    18    [InlineData(0.5, 10, 5)]
    19    [InlineData(10.5, 2, 21)]
    20    [InlineData(40.5, 10, 405)]
    21    [InlineData(30, 3, 90)]
    22    [InlineData(5, 4, 20)]
    23    [InlineData(6.25, 2, 12.5)]
    24    [InlineData(2.5, 10, 25)]
    25    [InlineData(1250, 2, 2500)]
    26    [InlineData(100, 0.5, 50)]
    27    [InlineData(27.5, 2, 55)]
    28    [InlineData(18, 3, 54)]
    29    [InlineData(18, 3, 54)]
    30
    31     0 references
    32     public void Testvolumen(double area, double altura, double volumen)
    33     {
    34         double resultado = Figura261E09.Volumen(area, altura);
    35         Assert.Equal(resultado, volumen, 1);
    36     }
    37 }

EXPLORER ... Program.cs
PROJECT < src > Application > ConsoleApp > WebApp > bin > obj > Pages > Properties & appsettings.Development.json & appsettings.json
  < Program.cs >
  < Program.cs > Program.csproj > test & Project.sln
src > WebApp > Program.cs > Program > <top-level-statements-entry-point>
  1 var builder = WebApplication.CreateBuilder(args);
  2
  3 builder.Services.AddRazorPages();
  4 var app = builder.Build();
  5
  6 app.MapRazorPages();
  7
  8 app.Run();
  9     1 reference
  public partial class Program{ }

```

## Pantallas de la evidencia:

```

Windows PowerShell
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Instale la versión más reciente de PowerShell para obtener nuevas características y mejoras. https://aka.ms/PSWindows

PS C:\Users\alidou> cd project
PS C:\Users\alidou\project> code .
PS C:\Users\alidou\project> dotnet test ./test\Application.UnitTesting
Restauración completada (1.5s)
Application net9.0 realizado correctamente (5.1s) > src\Application\bin\Debug\net9.0\Application.dll
Application.UnitTesting net9.0 realizado correctamente (2.2s) > test\Application.UnitTesting\bin\Debug\net9.0\Application.UnitTesting.dll
[xUnit.net 00:00:00.000] xUnit.net VTest Adapter v2.8.2+699d445a1a (64-bit .NET 9.0.9)
[xUnit.net 00:00:01.33] Discovering: Application.UnitTesting
[xUnit.net 00:00:01.53] Discovered: Application.UnitTesting
[xUnit.net 00:00:01.54] Starting: Application.UnitTesting
[xUnit.net 00:00:02.10] Finished: Application.UnitTesting
Application.UnitTesting net9.0 realizado correctamente prueba (6.2s)

Resumen de pruebas: total: 60, con errores: 0, correcto: 60, omitido: 0, duración: 6.1 s
Compilación realizado correctamente en 16.2s

```

```
PS C:\Users\aldo\project> dotnet test .\test\Application.IntegrationTest
Restauración completada (0.7s)
  Application net9.0 realizado correctamente (0.3s) → src\Application\bin\Debug\net9.0\Application.dll
  Application.IntegrationTest net9.0 realizado correctamente (0.4s) → test\Application.IntegrationTest\bin\Debug\net9.0\Application.IntegrationTest.dll
[xUnit.net 00:00:00.00] xUnit.net VSTest Adapter v2.8.2+699dd445a1a (64-bit .NET 9.0.9)
[xUnit.net 00:00:01.14] Discovering: Application.IntegrationTest
[xUnit.net 00:00:01.33] Discovered: Application.IntegrationTest
[xUnit.net 00:00:01.33] Starting: Application.IntegrationTest
[xUnit.net 00:00:01.76] Finished: Application.IntegrationTest
  Application.IntegrationTest net9.0 realizado correctamente prueba (4.0s)

Resumen de pruebas: total: 20, con errores: 0, correcto: 20, omitido: 0, duración: 3.9 s
Compilación realizado correctamente en 6.4s
PS C:\Users\aldo\project> dotnet test .\test\WebApp.IntegrationTest
Restauración completada (1.2s)
  Application net9.0 realizado correctamente (0.3s) → src\Application\bin\Debug\net9.0\Application.dll
  WebApp net9.0 realizado correctamente (2.4s) → src\WebApp\bin\Debug\net9.0\WebApp.dll
  WebApp.IntegrationTest net9.0 realizado correctamente (1.4s) → test\WebApp.IntegrationTest\bin\Debug\net9.0\WebApp.IntegrationTest.dll
[xUnit.net 00:00:00.00] xUnit.net VSTest Adapter v2.8.2+699dd445a1a (64-bit .NET 9.0.9)
[xUnit.net 00:00:00.37] Discovering: WebApp.IntegrationTest
[xUnit.net 00:00:00.50] Discovered: WebApp.IntegrationTest
[xUnit.net 00:00:00.51] Starting: WebApp.IntegrationTest
[xUnit.net 00:00:01.77] Finished: WebApp.IntegrationTest
  WebApp.IntegrationTest net9.0 realizado correctamente prueba (4.2s)

Resumen de pruebas: total: 6, con errores: 0, correcto: 6, omitido: 0, duración: 4.1 s
Compilación realizado correctamente en 10.9s
```