1.    Write an **if**-statement that takes two integer variables and **exchanges** their values if the first one is greater than the second one.

using System;

namespace Detyra1

{

class Program

{

static void Main(string[] args)

{

Console.Write("Enter first number: ");

int a = Int32.Parse(Console.ReadLine());

Console.Write("Enter second number: ");

int b = Int32.Parse(Console.ReadLine());

if (a > b)

{

a = a + b;

b = a - b;

a = a - b;

}

Console.WriteLine("First number is {0}, Second number is {1}.", a, b);

}

}

}

2.    Write a program that shows the sign (**+** or **-**) of the product of three real numbers, without calculating it. Use a sequence of **if** operators.

using System;

namespace Detyra2

{

class Program

{

static void Main()

{

Console.WriteLine("Enter number one:");

double a = double.Parse(Console.ReadLine());

Console.WriteLine("Enter number two:");

double b = double.Parse(Console.ReadLine());

Console.WriteLine("Enter number three:");

double c = double.Parse(Console.ReadLine());

if ((a < 0 && b > 0 && c > 0) || (b < 0 && a > 0 && c > 0) || (c < 0 && a > 0 && b > 0) || (a < 0 && b < 0 && c < 0))

{

Console.WriteLine("The sign of the product is - .");

}

else if ((a < 0 && b < 0 && c > 0) || (a < 0 && c < 0 && b > 0) || (b < 0 && c < 0 && a > 0) || (a > 0 && b > 0 && c > 0))

{

Console.WriteLine("The sign of the product is + .");

}

else if (a == 0 || b == 0 || c == 0)

{

Console.WriteLine("The product is 0 .");

}

}

}

}

3.    Write a program that finds the **biggest of three integers**, using nested **if** statements.

using System;

namespace Detyra3

{

class Program

{

static void Main(string[] args)

{

Console.WriteLine("Number 1");

int a = Int32.Parse(Console.ReadLine());

Console.WriteLine("Number 2");

int b = Int32.Parse(Console.ReadLine());

Console.WriteLine("Number 3");

int c = Int32.Parse(Console.ReadLine());

if (a > b)

if (a > c) Console.WriteLine("A is the biggest");

else if (a < c) Console.WriteLine("C is the biggest");

else Console.WriteLine("A and C are the biggest");

else if (a < b)

if (b > c) Console.WriteLine("B is the biggest");

else if (b < c) Console.WriteLine("C is the biggest");

else Console.WriteLine("B and C are the biggest");

if (a == b)

if (a == c) Console.WriteLine("All are equal");

else if (a < c) Console.WriteLine("C is the biggest");

else Console.WriteLine("First and second numbers are the biggest");

}

}

}

4.    **Sort 3 real numbers** in descending order. Use nested **if** statements.

using System;

namespace Detyra4

{

class Program

{

static void Main()

{

Console.WriteLine("Please write number one:");

double a = double.Parse(Console.ReadLine());

Console.WriteLine("Please write number two:");

double b = double.Parse(Console.ReadLine());

Console.WriteLine("Please write number three:");

double c = double.Parse(Console.ReadLine());

if ((a > b) && (a > c))

{

if (b > c)

{

Console.WriteLine("{0} {1} {2}", a, b, c);

}

else

{

Console.WriteLine("{0} {1} {2}", a, c, b);

}

}

else if ((b > a) && (b > c))

{

if (a > c)

{

Console.WriteLine("{0} {1} {2}", b, a, c);

}

else

{

Console.WriteLine("{0} {1} {2}", b, c, a);

}

}

else if ((c > a) && (c > b))

{

if (a > b)

{

Console.WriteLine("{0} {1} {2}", c, a, b);

}

else

{

Console.WriteLine("{0} {1} {2}", c, b, a);

}

}

}

}

}

5.    Write a program that asks for a digit (0-9), and depending on the input, **shows the digit as a word** (in English). Use a **switch** statement.

using System;

namespace Detyra5

{

class Program

{

static void Main(string[] args)

{

Console.WriteLine("Give a number 0-9");

int number = Int32.Parse(Console.ReadLine());

switch (number)

{

case 0:

Console.WriteLine("zero");

break;

case 1:

Console.WriteLine("one");

break;

case 2:

Console.WriteLine("two");

break;

case 3:

Console.WriteLine("three");

break;

case 4:

Console.WriteLine("four");

break;

case 5:

Console.WriteLine("five");

break;

case 6:

Console.WriteLine("six");

break;

case 7:

Console.WriteLine("seven");

break;

case 8:

Console.WriteLine("eight");

break;

case 9:

Console.WriteLine("nine");

break;

default:

Console.WriteLine("Wrong inout");

break;

}

}

}

}

6.    Write a program that gets the coefficients ***a***, ***b*** and ***c*** of a quadratic equation: ***a*x2** **+** ***b*x** **+** ***c***, calculates and prints its real roots (if they exist). Quadratic equations may have 0, 1 or 2 real roots.

using System;

namespace Detyra6

{

class Program

{

public static void Main()

{

int a, b, c;

double d, x1, x2;

Console.Write("\n\n");

Console.Write("Calculate root of Quadratic Equation :\n");

Console.Write("----------------------------------------");

Console.Write("\n\n");

Console.Write("Input the value of a : ");

a = Convert.ToInt32(Console.ReadLine());

Console.Write("Input the value of b : ");

b = Convert.ToInt32(Console.ReadLine());

Console.Write("Input the value of c : ");

c = Convert.ToInt32(Console.ReadLine());

d = b \* b - 4 \* a \* c;

if (d == 0)

{

Console.Write("Both roots are equal.\n");

x1 = -b / (2.0 \* a);

x2 = x1;

Console.Write("First Root Root1= {0}\n", x1);

Console.Write("Second Root Root2= {0}\n", x2);

}

else if (d > 0)

{

Console.Write("Both roots are real and diff-2\n");

x1 = (-b + Math.Sqrt(d)) / (2 \* a);

x2 = (-b - Math.Sqrt(d)) / (2 \* a);

Console.Write("First Root Root1= {0}\n", x1);

Console.Write("Second Root root2= {0}\n", x2);

}

else

Console.Write("Root are imaginary");

}

}

}

7.    Write a program that finds the **greatest of given 5 numbers**.

using System;

namespace detyra7

{

class Program

{

static void Main(string[] args)

{

Console.WriteLine("First number: ");

int nr1 = Int32.Parse(Console.ReadLine());

Console.WriteLine("Second number: ");

int nr2 = Int32.Parse(Console.ReadLine());

Console.WriteLine("Third number: ");

int nr3 = Int32.Parse(Console.ReadLine());

Console.WriteLine("Fourth number: ");

int nr4 = Int32.Parse(Console.ReadLine());

Console.WriteLine("Fifth number: ");

int nr5 = Int32.Parse(Console.ReadLine());

if ((nr1 >= nr2) && (nr1 >= nr3) && (nr1 >= nr4) && (nr1 >= nr5))

Console.WriteLine("First number if the biggest", nr1);

if ((nr2 >= nr1) && (nr2 >= nr3) && (nr2 >= nr4) && (nr2 >= nr5))

Console.WriteLine("Second number if the biggest", nr2);

if ((nr3 >= nr1) && (nr3 >= nr2) && (nr3 >= nr4) && (nr3 >= nr5))

Console.WriteLine("Third number if the biggest", nr3);

if ((nr4 >= nr1) && (nr4 >= nr2) && (nr4>= nr3) && (nr4 >= nr5))

Console.WriteLine("Fourth number if the biggest", nr4);

if ((nr5 >= nr1) && (nr5 >= nr2) && (nr5 >= nr3) && (nr5 >= nr4))

Console.WriteLine("Fifth number if the biggest", nr5);

}

}

}

8.    Write a program that, depending on the user’s choice, inputs **int**, **double** or **string** variable. If the variable is **int** or **double**, the program increases it by 1. If the variable is a **string**, the program appends "**\***" at the end. Print the result at the console. Use **switch** statement.

using System;

namespace Detyra8

{

class Program

{

static void Main(string[] args)

{

Console.WriteLine("Enter variable type (0 - int, 1 - double, 2 string): ");

int intVar = Int32.Parse(Console.ReadLine());

switch (intVar)

{

case 0:

{

Console.WriteLine("Enter int variable: ");

intVar = Int32.Parse(Console.ReadLine());

intVar++;

Console.WriteLine("Int variable +1 = {0}", intVar);

break;

}

case 1:

{

Console.WriteLine("Enter int variable: ");

double doubleVar = double.Parse(Console.ReadLine());

doubleVar++;

Console.WriteLine("Double variable +1 = {0}", doubleVar);

break;

}

case 2:

{

Console.WriteLine("Enter int variable: ");

string stringVar = Console.ReadLine();

stringVar = stringVar + '\*';

Console.WriteLine("String variable +\* = {0}", stringVar);

break;

}

default: Console.WriteLine("Wrong inout");

break;

}

}

}

}

9.    We are given 5 integer numbers. Write a program that finds those **subsets whose sum is 0**. Examples:

-     If we are given the numbers {3, -2, 1, 1, 8}, the sum of -2, 1 and 1 is 0.

-     If we are given the numbers {3, 1, -7, 35, 22}, there are no subsets with sum 0.

using System;

namespace Detyra10

{

class Program

{

static void Main(string[] args)

{

Console.Write("Enter a number between 0 and 999: ");

short number = Convert.ToInt16(Console.ReadLine());

byte hundreds = (byte)(number / 100 | 0);

byte tensAndOnes;

if (number > 99) tensAndOnes = (byte)(number % 100);

else tensAndOnes = (byte)(number \* 1);

byte ones = (byte)(number % 10);

switch (hundreds)

{

case 1: Console.Write("One hundred "); break;

case 2: Console.Write("Two hundred "); break;

case 3: Console.Write("Three hundred "); break;

case 4: Console.Write("Four hundred "); break;

case 5: Console.Write("Five hundred "); break;

case 6: Console.Write("Six hundred "); break;

case 7: Console.Write("Seven hundred "); break;

case 8: Console.Write("Eight hundred "); break;

case 9: Console.Write("Nine hundred "); break;

}

if (hundreds >= 1 && tensAndOnes >= 1) Console.Write("and ");

if (tensAndOnes >= 20 && tensAndOnes < 30) Console.Write("Twenty");

else if (tensAndOnes >= 30 && tensAndOnes < 40) Console.Write("Thirty");

else if (tensAndOnes >= 40 && tensAndOnes < 50) Console.Write("Fourty");

else if (tensAndOnes >= 50 && tensAndOnes < 60) Console.Write("Fifty");

else if (tensAndOnes >= 60 && tensAndOnes < 70) Console.Write("Sixty");

else if (tensAndOnes >= 70 && tensAndOnes < 80) Console.Write("Seventy");

else if (tensAndOnes >= 80 && tensAndOnes < 90) Console.Write("Eighty");

else if (tensAndOnes >= 90 && tensAndOnes < 100) Console.Write("Ninety");

switch (tensAndOnes)

{

case 1: Console.Write("One"); break;

case 2: Console.Write("Two"); break;

case 3: Console.Write("Three"); break;

case 4: Console.Write("Four"); break;

case 5: Console.Write("Five"); break;

case 6: Console.Write("Six"); break;

case 7: Console.Write("Seven"); break;

case 8: Console.Write("Eight"); break;

case 9: Console.Write("Nine"); break;

case 10: Console.Write("Ten"); break;

case 11: Console.Write("Eleven"); break;

case 12: Console.Write("Twelve"); break;

case 13: Console.Write("Thirteen"); break;

case 14: Console.Write("Fourteen"); break;

case 15: Console.Write("Fifteen"); break;

case 16: Console.Write("Sixteen"); break;

case 17: Console.Write("Seventeen"); break;

case 18: Console.Write("Eighteen"); break;

case 19: Console.Write("Nineteen"); break;

}

if (tensAndOnes > 20)

{

switch (ones)

{

case 1: Console.Write("-one"); break;

case 2: Console.Write("-two"); break;

case 3: Console.Write("-three"); break;

case 4: Console.Write("-four"); break;

case 5: Console.Write("-five"); break;

case 6: Console.Write("-six"); break;

case 7: Console.Write("-seven"); break;

case 8: Console.Write("-eight"); break;

case 9: Console.Write("-nine"); break;

}

}

if (number == 0) Console.Write("Zero");

Console.ReadLine();

}

}

}

10.   Write a program that applies **bonus points** to given scores in the range [1…9] by the following rules:

-     If the score is between 1 and 3, the program multiplies it by 10.

-     If the score is between 4 and 6, the program multiplies it by 100.

-     If the score is between 7 and 9, the program multiplies it by 1000.

-     If the score is 0 or more than 9, the program prints an error message.

using System;

namespace Detyra9

{

class Program

{

static void Main(string[] args)

{

Console.WriteLine("You have to enter five integers. Please enter the first one.");

int a = int.Parse(Console.ReadLine());

Console.WriteLine("Please enter an integer.");

int b = int.Parse(Console.ReadLine());

Console.WriteLine("Please enter an integer.");

int c = int.Parse(Console.ReadLine());

Console.WriteLine("Please enter an integer.");

int d = int.Parse(Console.ReadLine());

Console.WriteLine("Please enter an integer.");

int e = int.Parse(Console.ReadLine());

if (a + b == 0)

{

Console.WriteLine("{0} + {1} = 0", a, b);

}

if (a + c == 0)

{

Console.WriteLine("{0} + {1} = 0", a, c);

}

if (a + d == 0)

{

Console.WriteLine("{0} + {1} = 0", a, d);

}

if (a + e == 0)

{

Console.WriteLine("{0} + {1} = 0", a, e);

}

if (b + c == 0)

{

Console.WriteLine("{0} + {1} = 0", b, c);

}

if (b + d == 0)

{

Console.WriteLine("{0} + {1} = 0", b, d);

}

if (b + e == 0)

{

Console.WriteLine("{0} + {1} = 0", b, e);

}

if (c + d == 0)

{

Console.WriteLine("{0} + {1} = 0", c, d);

}

if (c + e == 0)

{

Console.WriteLine("{0} + {1} = 0", c, e);

}

if (d + e == 0)

{

Console.WriteLine("{0} + {1} = 0", d, e);

}

if (a + b + c == 0)

{

Console.WriteLine("{0} + {1} + {2} = 0", a, b, c);

}

if (a + b + d == 0)

{

Console.WriteLine("{0} + {1} + {2} = 0", a, b, d);

}

if (a + b + e == 0)

{

Console.WriteLine("{0} + {1} + {2} = 0", a, b, e);

}

if (a + c + d == 0)

{

Console.WriteLine("{0} + {1} + {2} = 0", a, c, d);

}

if (a + c + e == 0)

{

Console.WriteLine("{0} + {1} + {2} = 0", a, c, e);

}

if (a + d + e == 0)

{

Console.WriteLine("{0} + {1} + {2} = 0", a, d, e);

}

if (b + c + d == 0)

{

Console.WriteLine("{0} + {1} + {2} = 0", b, c, d);

}

if (b + d + e == 0)

{

Console.WriteLine("{0} + {1} + {2} = 0", b, d, e);

}

if (b + c + e == 0)

{

Console.WriteLine("{0} + {1} + {2} = 0", b, c, e);

}

if (c + d + e == 0)

{

Console.WriteLine("{0} + {1} + {2} = 0", c, d, e);

}

if (a + b + c + d == 0)

{

Console.WriteLine("{0} + {1} + {2} + {3} = 0", a, b, c, d);

}

if (a + b + c + e == 0)

{

Console.WriteLine("{0} + {1} + {2} + {3} = 0", a, b, c, e);

}

if (a + b + d + e == 0)

{

Console.WriteLine("{0} + {1} + {2} + {3} = 0", a, b, d, e);

}

if (a + c + d + e == 0)

{

Console.WriteLine("{0} + {1} + {2} + {3} = 0", a, c, d, e);

}

if (b + c + d + e == 0)

{

Console.WriteLine("{0} + {1} + {2} + {3} = 0", b, c, d, e);

}

if (a + b + c + d + e == 0)

{

Console.WriteLine("{0} + {1} + {2} + {3} + {4} = 0", a, b, c, d, e);

}

else

{

Console.WriteLine("No zero subset.");

}

}

}

}

11.   \* Write a program that **converts a number in the range [0…999] to words**, corresponding to the English pronunciation. Examples:

-     0 --> "Zero"

-     12 --> "Twelve"

-     98 --> "Ninety eight"

-     273 --> "Two hundred seventy three"

-     400 --> "Four hundred"

-     501 --> "Five hundred and one"

-     711 --> "Seven hundred and eleven"

using System;

namespace Detyra11

{

class Program

{

static void Main(string[] args)

{

Console.Write("Enter a number between 0 and 999: ");

short number = Convert.ToInt16(Console.ReadLine());

byte hundreds = (byte)(number / 100 | 0);

byte tensAndOnes;

if (number > 99) tensAndOnes = (byte)(number % 100);

else tensAndOnes = (byte)(number \* 1);

byte ones = (byte)(number % 10);

switch (hundreds)

{

case 1: Console.Write("One hundred "); break;

case 2: Console.Write("Two hundred "); break;

case 3: Console.Write("Three hundred "); break;

case 4: Console.Write("Four hundred "); break;

case 5: Console.Write("Five hundred "); break;

case 6: Console.Write("Six hundred "); break;

case 7: Console.Write("Seven hundred "); break;

case 8: Console.Write("Eight hundred "); break;

case 9: Console.Write("Nine hundred "); break;

}

if (hundreds >= 1 && tensAndOnes >= 1) Console.Write("and ");

if (tensAndOnes >= 20 && tensAndOnes < 30) Console.Write("Twenty");

else if (tensAndOnes >= 30 && tensAndOnes < 40) Console.Write("Thirty");

else if (tensAndOnes >= 40 && tensAndOnes < 50) Console.Write("Fourty");

else if (tensAndOnes >= 50 && tensAndOnes < 60) Console.Write("Fifty");

else if (tensAndOnes >= 60 && tensAndOnes < 70) Console.Write("Sixty");

else if (tensAndOnes >= 70 && tensAndOnes < 80) Console.Write("Seventy");

else if (tensAndOnes >= 80 && tensAndOnes < 90) Console.Write("Eighty");

else if (tensAndOnes >= 90 && tensAndOnes < 100) Console.Write("Ninety");

switch (tensAndOnes)

{

case 1: Console.Write("One"); break;

case 2: Console.Write("Two"); break;

case 3: Console.Write("Three"); break;

case 4: Console.Write("Four"); break;

case 5: Console.Write("Five"); break;

case 6: Console.Write("Six"); break;

case 7: Console.Write("Seven"); break;

case 8: Console.Write("Eight"); break;

case 9: Console.Write("Nine"); break;

case 10: Console.Write("Ten"); break;

case 11: Console.Write("Eleven"); break;

case 12: Console.Write("Twelve"); break;

case 13: Console.Write("Thirteen"); break;

case 14: Console.Write("Fourteen"); break;

case 15: Console.Write("Fifteen"); break;

case 16: Console.Write("Sixteen"); break;

case 17: Console.Write("Seventeen"); break;

case 18: Console.Write("Eighteen"); break;

case 19: Console.Write("Nineteen"); break;

}

if (tensAndOnes > 20)

{

switch (ones)

{

case 1: Console.Write("-one"); break;

case 2: Console.Write("-two"); break;

case 3: Console.Write("-three"); break;

case 4: Console.Write("-four"); break;

case 5: Console.Write("-five"); break;

case 6: Console.Write("-six"); break;

case 7: Console.Write("-seven"); break;

case 8: Console.Write("-eight"); break;

case 9: Console.Write("-nine"); break;

}

}

if (number == 0) Console.Write("Zero");

Console.ReadLine();

}

}

}