5.1 Loop the following program to allow the user to perform another calculation.

|  |
| --- |
| char select;  double width, height;  cout << "Select an Option:" << endl;  cout << "R: Calculate the area of a rectangle" << endl;  cout << "T: Calculate the area of a triangle" << endl;  cout << "Selection: ";  cin >> select;  if (select == 'R')  {  cout << "Enter the width then height of the rectangle: ";  cin >> width >> height;  cout << "Area is " << width \* height << endl;  }  else if (select == 'T')  {  cout << "Enter the base then height of the triangle: ";  cin >> width >> height;  cout << "Area is " << 0.5 \* width \* height << endl;  } |
|  |

5.2 Write an if statement which prints the text, “x is between 2 and 8” when the value of x is between 2 and 8 inclusively.

5.3 Detect whether a character entered by the user is a letter, digit, or neither.

5.4 Using a **for** loop, write a function which calculates the result of **be** where *b* and *e* are inputs to the function and *e* is an integer.

5.5 Write a program which displays the conversion from kilometers to miles for each kilometer ranging from 1 to 10 inclusively.

I.e.

1 kilometer = 0.621371 miles

2 kilometers = 1.24274 miles

…

10 kilometers = 6.21371 miles

5.6 Use a break to allow for exiting the loop.

|  |
| --- |
| char select = 0;  double width, height;  while (select != 'E')  {  cout << "Select an Option:" << endl;  cout << "R: Calculate the area of a rectangle" << endl;  cout << "T: Calculate the area of a triangle" << endl;  cout << "E: To Exit"  cout << "Selection: ";  cin >> select;  if (select == 'R')  {  cout << "Enter the width then height of the rectangle: ";  cin >> width >> height;  cout << "Area is " << width \* height << endl;  }  else if (select == 'T')  {  cout << "Enter the base then height of the triangle: ";  cin >> width >> height;  cout << "Area is " << 0.5 \* width \* height << endl;  }  } |

5.7 Impractical Continue Example

|  |
| --- |
| int i = 0;  while (i < 5)  {  cout << i << endl;  continue;  i++;  } |

5.8 Impractical For Continue Example

|  |
| --- |
| int i;  for (i = 0; i < 5; i++)  {  cout << i << endl;  continue;  cout << "not executed" << endl;  } |

5.9 Slightly more practical continue example

|  |
| --- |
| int i = -1;  while (i < 9)  {  if (i % 2 == 1)  {  i++;  continue;  }  i++;  cout << i << endl;  } |

5.10 Goto Example

|  |
| --- |
| int i = 0;  loop:  cout << i << endl;  i++;  if (i < 5)  goto loop; |

5.11 Switch Example

|  |
| --- |
| int x;  cin >> x;  switch (x)  {  case 1:  cout << "X is 1" << endl;  break;  case 2:  cout << "X is 2" << endl;  break;  default:  cout << "X is neither 1 or 2" << endl;  } |

5.12 Falling Cases

Write a program which takes a letter grade as an input and displays the numeric range for which that grade represents. The program shall be able to accept lowercase or uppercase letters.

5.13 Unguided Example

* Have the user enter in two numbers in which they wish to perform an arithmetic operation on.
* Prompt the user to select which arithmetic operation they wish to perform (-, +, \*)
* Using a switch statement, perform the specified operation and print the result