**CISP 360 Note Sheet Ch 1 – 4**

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| **Major Data types:**  int x = 1;  double x = 1.0;  string s = "";  char c = 'a';  bool b = true;  **Program Header:**  #include <iostream>  using namespace std;  int main()  {  …  }  **Input:**  getline(cin, s);  cin >> x;  **Output:**  cout << x;  **Math functions:**  #include <cmath>  sqrt(x) //square root  pow(base, exponent) //power  fabs(x) //absolute value  **Random Numbers:**  #include <cstdlib>  …  srand(seed);  //random in range [a…b]  x = rand() % (b - a + 1) + a;  **Relational Operators:**  <, >, <=, >=, ==, !=  **Logical Operators:**  &&, ||, !  **Check if x is outside [low...high]:**  !(x >= low && x <= high)  (x < low || x > high)  **Check if x is inside [low... high]:**  (x >= low && x <= high)  !(x < low || x > high) | **if / else if / else:**  if (expr1)  {  …  }  else if (expr2)  {  …  }  ...  else if (exprN)  {  …  }  else  {  …  }  **Switch:**  switch (variable)  {  case value1:  // Statements  break;  case value2:  // Statements  break;  ...  default:  // Statements  break;  }  **While Loop:**  while (expression)  {  // Statements  }  **Do-While Loop:**  do  {  // Statements  } while (loopExpression);  **Postfix increment:** i++  **Prefix increment:** i-- | **For Loop:**  for(initExpression; condition; update)  {  // Statements  }  **Iterate from [0…max - 1]:**  for(int i = 0; i < max; i++)  {  /// Statements  }  **break;**  Exits the current loop immediately  **continue;**  Jumps to the next iteration |