Solve the following problems related to material found in Chapter 3 and the course standards. Statement True / False The coding assignment for lab #3 forbids the use of selection constructs (if, else if, else, switch), logical operators (AND, OR, NOT), and relational operators (<=, >, >=, ==, !=).

TRUE All of the compound assignment operators share the same level of operator precedence.

Operator precedence can be used to bind operators to operands and from that will determine the order of operations in an expression.

A single-type operation will generate a result of that same type.

When evaluating an operator with mixed-type operands it is the lower ranked data type that is converted to that of the higher ranked data type.

The use of a precision modifier when displaying a floating-point value will result in truncating all digits beyond the specified precision value.

Converting a higher ranked data type to that of a lower ranked data type may result in the loss of data.

Section 3.1 When two operators with the same precedence occur in an expression and their associativity is left-to-right, the left operator is evaluated first.

An expression always reduces to a single value.

The value of the postfix increment expression is determined before the variable is increased.

The operand in a postfix or prefix expression must be a variable.

The assignment expression evaluates the operand on the right side of the operator and places its value in the variable on the left.

When a compound assignment is used with an expression, the expression is only evaluated first when parentheses are used to raise its level of precedence. Example: x \*= (a + b)]

The compound assignment operator (/=) has a higher level of precedence then the addition operator (+).

Section 3.4 The result of an expression is undefined when it attempts to modify a single variable more than once.

Section 3.5 When the types of two operands in a binary expression are different, C automatically converts one type to the other.

When the types of two operands in a binary expression are different, the lower-ranked type is promoted to the rank of the higher type.

In an assignment statement, promotion occurs if the right expression has a lower rank than the variable on the left and demotion occurs if the right expression has a higher rank.

An explicit type conversion is the programmer taking control and determining the data type of an operand in an expression.

To cast data from one type to another, we specify the new type in parentheses before the value we want converted.

Section 3.6 The defined constant results in an automatic substitution of the value that follows the symbol where it is found in the program. One exception, no such substitution will take place inside of quotes.

Problems associated with defined constants are difficult to resolve as the programmer views the original statement and not the statement with the error after the substitution takes place.

Section 3.7 One programming technique to simplify code is to use parentheses, even when unnecessary.

2 Solve the following problems related to standard library constants and functions: In which library will you find the abs function? How is this function different from the fabs function found in math.h? What is INT\_MAX? Where is it defined? What are FLT\_MAX and FLT\_DIG? Where are these defined? Identify each of the constants found math.h below: M\_E M\_PI M\_LOG2E M\_LOG10E M\_LN2 M\_LN10 Solve the following problems related to material found in Chapter 3. • 25 % 11 • 49 % 5 • 132 % 2 • 133 % 2 • 134 % 2 • 135 % 2 • 16 % 17 • 2 % 1 Given A and B are integer variables, both are greater than zero, and A is greater than B. What is the result of the expression below? • B % A Given A and B are integer variables, both are greater than zero, and A is less than B. What is the range of values possible as a result of the expression below? • B % A