#  Enumerations & Typedef Homework

1. a) Declare a tag for an enumeration whose values represent the seven days of the week.

enum days { SUN, MON, TUES, WED, THURS, FRI, SAT };

b) Use typedef to define a name for the enumeration.

typedef enum { SUN, MON, TUES, WED, THURS, FRI, SAT } Days;

2. Which of the following statements about enumeration constants are true?

a) An enumeration constant may represent any integer specified by the programmer.

True.

b) Enumeration constants have exactly the same properties as constants created using #define.

False.

c) Enumeration constants have the values 0, 1, 2, … by default.

True.

d) All constants in an enumeration must have different values.

False.

e) Enumeration constants may be used as integers in expressions.

True.

3. Suppose that b and i are declared as follows:

enum { FASLE, TRUE } b;

int i;

Which of the following statements are legal? Which ones are “safe” (always yield a meaningful result)?

1. b = FALSE; d) i = b;
2. b = i; e) i = 2 \* b + 1;
3. b++;

All the statements are legal, since C allows integers and enumeration values to be mixed without restriction. However, only (a), (d), and (e) are safe. (b) is not meaningful if i has a value other than 0 or 1. (c) will not yield a meaningful result if b has the value 1.

4. Suppose that the direction variable is declared as follows:

enum { NORTH, SOUTH, EAST, WEST } direction;

Let x and y be int variables. Write a switch statement that tests the value of direction, incrementing x if direction is EAST, decrementing x if direction is WEST, incrementing y if direction is SOUTH, and decrementing y if direction is NORTH.

switch (direction) {

case NORTH: y--; break;

case SOUTH: y++; break;

case EAST: x++; break;

case WEST: x--; break;

}

5. What are the integer values of the enumeration constants in each of the following declarations?

a) enum { NORTH, EAST, SOUTH, WEST };

NORTH = 0, EAST = 1, SOUTH = 2, WEST = 3

b) enum { DIAMONDS = 5, HEARTS, CLUBS, SPADES };

DIAMONDS = 5, HEARTS = 6, CLUBS = 7, SPADES = 8

c) enum { MON = 8, TUES, WED, THURS = 14, FRI };

MON = 8, TUES = 9, WED = 10, THURS = 14, FRI = 15

d) enum { RED = 5, BLUE, GREEN, YELLOW = 12, BROWN };

RED = 5, BLUE = 6, GREEN = 7, YELLOW = 12, BROWN = 13