INT. to SCIENTIFIC and ENGINEERING COMP. - BİL105E

1. YILİÇİ SINAVI   **CRN: 22215**

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Adı-Soyadı: No: İmza:

Soru	1	2	3	Toplam
Puan	/25	/35	/40	/100

Süre 75 dakikadır.

1. The harmonic mean of three numbers is defined as:

$$\frac{3}{\frac{1}{x_1} + \frac{1}{x_2} + \frac{1}{x_3}}$$

   (a) Write a macro definition `harmonic(x,y,z)` that computes the harmonic mean of x, y and z using the formula given above.

   (b) Write the following assignment statement using the expanded version of the macro:
       `b = harmonic(m-1, n+3, p);`

2. What will be the output of the following piece of program given that all variables are integers? The initial values are: $x = 13, y = 23, a = 0, b = 1, r = 2$.

```
while (r > 1) {
    r = x % y;
    c = b;
    b = a - x / y * c;
    a = c;
    x = y;
    y = r;
    cout << a << " " << b << " " << x << " " << y << endl;
}
```

a	b	x	y

1

3. The surface area of a human body can be roughly calculated using the following formula by DuBois

$$bsa = h^{0.725} * w^{0.425} * 71.84 * 10^{-4}$$

where h is the height in cm, w is the weight in kg and bsa is the body surface area in m^2. Write a complete program that will calculate and display the body surface area of a person whose height and weight will be input by the user.