Jibri Kea   Math 206, Section 2,   November 4, 2015

I worked with:

1. **Problem 6: Number Systems** Perform D3F02 (hex) + C34D (hex). State your answer in hexadecimal and decimal.

    D3F02h + C34Dh

    $$D3F02h$$

    $$1101 + 0011 + 1111 + 0000 + 0010b$$
    $$13 + 3 + 15 + 0 + 2d$$
    $$13 * 16^4 + 3 * 16^3 + 15 * 16^2 + 0 * 16^1 + 2 * 16^0$$
    $$851,968 + 12,288 + 3,840 + 0 + 2d$$
    $$868,098d$$

    $$C34Dh$$

    $$1100 + 0011 + 0100 + 1101b$$
    $$12 + 3 + 4 + 13d$$
    $$12 * 16^3 + 3 * 16^2 + 4 * 16^1 + 13 * 16^0$$
    $$49,152 + 768 + 64 + 13d$$
    $$49,997d$$

    $$D3F02h + C34Dh = 918,095d$$
    $$11010011111100000010b$$
    $$+1100001101001101b$$
    $$11100000001001001111b$$
    $$14 + 0 + 2 + 4 + 15h$$
    $$E024Fh = 918,095d$$

2. **Problem 8: Number Systems** Convert 109 to base 7.

$$109/7 = 15R4$$
$$15/7 = 2R1$$

$$214_7$$
$$2 * 2^2 * 7^1 + 4 * 7^0$$
$$98 + 7 + 4 = 109d = 214_7$$

3. **Problem 19** Find a closed form.

$$1, 4, 7, 10, 13, 16, 19$$

$$a_n = c + dn + fn^2$$
$$a_1 = c + d + f = 1$$
$$a_2 = c + 2d + 4f = 4$$
$$a_3 = c + 3d + 9f = 7$$
$$c = -2$$
$$d = 3$$
$$f = 0$$
$$a_n = -2 + 3n$$

4. **Problem 19** Find a closed form.

$$-1, 1, 3, 5, 7, 9, 11$$

For n is greater than/equal to 0.
$$GUESS a_n = 2_{n-1}$$
$$n = 0 : True - 1 = 0 - 1 = -1$$

Assume for some n ¿= 1. a(k) = 2(k) - 1

$$= 4n - 2 - 2n + 3 = 2n + 1 = 2(n + 1) - 1$$