## Homework 3

#### Problem 1:

>> A = [5,10;-2,6];

>> B = [4,1;3,5];

>> C = [7,-7;-9,3];

>> Z = A - B;

>> z1\_2 = Z(1, 2)

**z1\_2 = 9**

>> Z = B\*A;

>> z2\_2 = Z(2, 2)

**z2\_2 = 60**

>> Z = A\*B\*C;

>> z2\_1 = Z(2, 1)

**z2\_1 = -182**

>> det\_A = det(A)

**det\_A = 50**

>> Z = inv(A);

>> z2\_2 = Z(2, 2)

**z2\_2 = 0.1000**

>> Z = inv((A\*B));

>> z1\_1 = Z(1, 1)

**z1\_1 = 0.0329**

#### Problem 2:

>> A = [1,3,4,10;6,8,7,9];

>> B = [2,3;5,2;6,-3;-5,8];

>> Z = A\*B;

>> z1\_2 = Z(1, 2)

**z1\_2 = 77**

>> Z = B\*A;

>> z3\_4 = Z(3, 4)

**z3\_4 = 33**

#### Problem 3:

>> a = [1,3,7,9];

>> b = [5;12;11;8]

>> a\*b

**ans = 190**

>> C = b\*a;

>> c3\_2 = C(3,2)

**c3\_2 = 33**

#### Problem 4:

>> A = [-5,8,1;3,7,2;6,12,8];

>> det\_A = det(A)

**det\_A = -262**

>> Z = inv(A);

>> z3\_2 = Z(3, 2)

**z3\_2 = -0.4122**

#### Problem 5:

total\_pay = 0; % Initialize total payment

for day = 1:30

payment = daily\_pay(day); % Calculate payment for the day

total\_pay = total\_pay + payment; % Add payment to total

fprintf('Day %d: Earned $%.2f\n', day, payment / 100); % Convert payment to dollars and print

end

fprintf('Total earnings over 30 days: $%.2f\n', total\_pay / 100); % Print total earnings in dollars

function payment = daily\_pay(day)

payment = 2^(day - 1); % Calculate the payment for the day

end

>> Vermaak\_David\_HWK\_3\_P\_5

Day 1: Earned $0.01

Day 2: Earned $0.02

Day 3: Earned $0.04

Day 4: Earned $0.08

Day 5: Earned $0.16

Day 6: Earned $0.32

Day 7: Earned $0.64

Day 8: Earned $1.28

Day 9: Earned $2.56

Day 10: Earned $5.12

Day 11: Earned $10.24

Day 12: Earned $20.48

Day 13: Earned $40.96

Day 14: Earned $81.92

Day 15: Earned $163.84

Day 16: Earned $327.68

Day 17: Earned $655.36

Day 18: Earned $1310.72

Day 19: Earned $2621.44

Day 20: Earned $5242.88

Day 21: Earned $10485.76

Day 22: Earned $20971.52

Day 23: Earned $41943.04

Day 24: Earned $83886.08

Day 25: Earned $167772.16

Day 26: Earned $335544.32

Day 27: Earned $671088.64

Day 28: Earned $1342177.28

Day 29: Earned $2684354.56

Day 30: Earned $5368709.12

**Total earnings over 30 days: $10737418.23**

**He would have to work 21 days to earn $10485.76**