```
% Question 1
% Part a
A = [2 -1; 1 1]
```

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```
A = 2×2
     2    -1
     1     1
```

```
det(A)
```

```
ans = 3
```

✓

```
% Part b
B = [2 -1 1; 1 1 2]
```

```
B = 2×3
     2    -1     1
     1     1     2
```

```
B(2,1:3) = B(2,1:3) + -(1/2)*B(1,1:3)
```

```
B = 2×3
    2.0000   -1.0000    1.0000
         0    1.5000    1.5000
```

```
% Part c
C = B(1:2,3)
```

```
C = 2×1
    1.0000
    1.5000
```

```
A\C
```

```
ans = 2×1
    0.8333
    0.6667
```

- 1

```
% Part d
A = [2 -1; 1 1.0001]
```

```
A = 2×2
    2.0000   -1.0000
    1.0000    1.0001
```

```
A\C % x_1 has the same value as in the first instance
```

```
ans = 2×1
    0.8333
    0.6666
```

```
% while x_2 decreases very slightly as A_22 increases slightly

clear
close all
% Question 2
% Part a
A = [0.5 -1; 1 -2.01]
```

```
A = 2×2
    0.5000   -1.0000
    1.0000   -2.0100
```

```
det(A)
```

```
ans = -0.0050
```

```
% Part b
B = [0.5 -1 -0.5; 1 -2.01 -1.01]
```

```
B = 2×3
    0.5000   -1.0000   -0.5000
    1.0000   -2.0100   -1.0100
```

```
B(2,1:3) = B(2,1:3) - 2*B(1,1:3)
```

```
B = 2×3
    0.5000   -1.0000   -0.5000
         0   -0.0100   -0.0100
```

```
% Part c
C = [-0.5;-1.01]
```

```
C = 2×1
   -0.5000
   -1.0100
```

```
A\C
```

```
ans = 2×1
    1.0000
    1.0000
```

```
% Part d
A = [0.5 -1; 1 -2.0001]
```

```
A = 2×2
    0.5000   -1.0000
    1.0000   -2.0001
```

```
A\C % X_1 and X_2 are both greatly increased compared to the
```

```
ans = 2×1
  199.0000
  100.0000
```

```
% first iteration with a slightly bigger a_22 value
```