PS2 Question 5

```
A = [[1,3,3,2]; [2, 6, 9, 5]; [-1, -3, 3, 0]];
fundamental_subspaces(A);
```

E_r =

```
    1.0000    3.0000         0    1.0000
         0         0    1.0000    0.3333
         0         0         0         0
```

row_space =

```
    1.0000         0
    3.0000         0
         0    1.0000
    1.0000    0.3333
```

column_space =

```
     1     3
     2     9
    -1     3
```

left_null_space =

```
    1.0000
   -0.4000
    0.2000
```

right_null_space_numerical =

```
    0.9504   -0.0702
   -0.3102   -0.2794
    0.0066   -0.3028
   -0.0197    0.9085
```

right_null_space =

```
   -3.0000   -1.0000
    1.0000         0
         0   -0.3333
         0    1.0000
```

PS1 Question 4 (validation)

```
B = [[0 1 2 3 4]; [0 1 2 4 6]; [0 0 0 1 2]];
fundamental_subspaces(B);
```

E_r =

```
     0      1      2      0     -2
     0      0      0      1      2
     0      0      0      0      0
```

row_space =

```
     0      0
     1      0
     2      0
     0      1
    -2      2
```

column_space =

```
     1      3
     1      4
     0      1
```

left_null_space =

```
     1
    -1
     1
```

right_null_space_numerical =

```
     0.9508    -0.0831     0.2984
    -0.2729    -0.0059     0.8678
     0.0821    -0.4044    -0.3743
     0.1086     0.8146    -0.1192
    -0.0543    -0.4073     0.0596
```

right_null_space =

```
     1      0      0
     0     -2      2
     0      1      0
     0      0     -2
     0      0      1
```