**Answer a.** - The multiplication is not possible since the dimensions are not aligned for matrix multiplication. The rule states that the number of columns of first matrix should be equal to number of rows of second matrix.

```
>>> import numpy as np
>>> import tensorflow as tf
>>> a = [[1,4,-3],[2,-1,3]]
>>> b = [[-2,0,5],[0,1,4]]
>>> np.matmul(a,b)                    ---- (if we multiply directly it throws an error)
ValueError: shapes (2,3) and (2,3) not aligned: 3 (dim 1) != 2 (dim 0)
    ^
```

**Answer b.**

```
>>> import numpy as np
>>> import tensorflow as tf
>>> a = [[1,4,-3],[2,-1,3]]
>>> b = [[-2,0,5],[0,1,4]]
>>> c = np.transpose(a)
>>> c
 array([[ 1,  2],
     [ 4, -1],
     [-3,  3]])
>>> d = np.matmul(c,b)
>>> d
>>> array([[-2,  2, 13],
     [-8, -1, 16],
     [ 6,  3, -3]])
>>> e = np.ndim(d)
>>> e
2                                           ----(rank of matrix is 2)
```

**Answer c.**

```
>>> a = [[1,4,-3],[2,-1,3]]
>>> b = [[-2,0,5],[0,1,4]]
>>> c =[[1,0],[0,2]]
>>> d = np.transpose(b)
>>> e = np.linalg.inv(c)
>>> f = np.add(np.matmul(a,d),e)
>>> f
array([[-16. ,  -8. ],
     [ 11. ,  11.5]])
```