13 1)

2 a) [1, 11, 21, 31, 41]

2 b) 2, 5, 8, 11, 14, 17

2 c) [False, F, T, F, F]

d) 2

	Name	Value
1	b	10
2	c	20
3	d	30

e) 2

	Name	Value	Value2 1
1	a	0	0
2	b	10	10
3	c	20	20
4	d	30	25 1
5	e	40	25
6	f	50	25

f) 3

1

	Name_	Value1	Value2
1	a	1	10
2	b	2	20
3	c	3	NaN
4	d	4	NaN 1

1

2) 13

2a) np.max(A[:, 5]) 2

2b) A[4, 1::2] 2

3c) B = A[:, -12:] 2

B = B - np.mean(B) 1

3d) B = A[10:21, :] 1

np.sum(B==3) 2

, count_nonzero

3e) a = A[:, 6]

a = a.sort() 1

a[-15:] 2

3) 18

2a) nba[nba['games'] > 60].count() 1 1

3b) nba['...'] = nba['salary'] * 1.2 2

nba['...'].mean() 1

3c) nba[nba['position'] == 'C']['age'].max() 1 1 1

4d) nba[nba['age'] == nba['age'].max()]['player'] 1 2 1

3e) nba.groupby(['prefix']).mean()['salary'] 2 1

3f) nba2 = nba.groupby(['prefix']).count() 1

nba2[(12 <= nba2['player']) & (nba2['player'] <= 15)].count() 1 1

4) (6)

```
nba_new = nba[ (nba['position']=='PG') |
               (nba['position']=='C') ]
```
1

```
nba_new['salary2'] = nba_new['salary'].sample(len(nba_new),
                                               replace=False)
```
3

```
pos = nba_new.groupby('position').mean()['salary2'].
                                              reset_index()
```
2

```
(pos.iloc[0]['salary2'] - pos.iloc[1]['salary2']).abs()
```
1

5) (8)

```
die = np.arange(1, 7)  1
np.random.choice(die, 3)  2
die_df = pd.DataFrame(die)  1
die_df.sample(100, replace=True)  1
means = [ ]
for i in range(10000):  1
    means.append(die_df.sample(100, replace=True).mean())
```
1 1

6) 8

a) (4) $\frac{1}{7}$

$1/35 \Rightarrow 2$

$19/35 \Rightarrow 2$

b) X_1: 1st ball is black 1
4 X_2: 2nd ball is black

$$P(X_2) = P(X_1 \cap X_2) \overset{1}{+} P(X_1^c \cap X_2)$$

$$= P(X_1)\,P(X_2|X_1) + P(X_1^c)\overset{1}{}P(X_2|X_1^c)$$

$$= \underset{1}{\frac{2}{5}\cdot\frac{5}{7}} + \underset{1}{\frac{3}{5}\cdot\frac{4}{7}} = \frac{22}{35}$$

7) X_1: 1st result is red
12 X_2: 2nd result is red 1
Y: first die is chosen

5 a) $$P(X_1 \cap X_2) = P(Y \cap X_1 \cap \overset{1}{X_2}) + P(Y^c \overset{1}{\cap} X_1 \cap X_2)$$

$$= \underset{1}{\frac{1}{2}\cdot\frac{4}{6}\cdot\frac{4}{6}} + \underset{1}{\frac{1}{2}\cdot\frac{2}{6}\cdot\frac{2}{6}} = \frac{5}{18}$$

7 b) $$P(\underset{1}{Y|X_1}) = \frac{P(X_1 \cap Y)}{P(X_1)} \overset{1}{=} \frac{P(Y)\,P(X_1|Y) \quad 1}{P(Y)\,P(X_1|Y) + P(Y^c)\,P(X_1|Y^c)} \quad 2$$

$$= \frac{\frac{1}{2}\cdot\frac{4}{6} \quad 2}{\frac{1}{2}\cdot\frac{4}{6} + \frac{1}{2}\cdot\frac{2}{6}} = 2/3$$

1/2 yoksa − 2

Sadece sonuç varsa 1

9) 11

3 a) i

3 b) F
T
T

5 c) F
F
F
T
T

10) 8

3 a) False.

Sample'larda bilinemez.

5 b) F
T
F
F
T

11) 7

2 a) (# of nuclei in infected cells) = (# of nuclei in healthy cells)

2 b) # of nuclei in infected cells > # of nuclei in healthy cells

3 c) mean of # of nuclei in infected cells − mean of # of nuclei in healthy cells

you can take abs or not

12) 4

```
l = np.percentile(means, 2.5, method='higher')
r = np.percentile(means, 97.5, method='higher')
```

1 1 1 1