Niklas Vest - A22

```
Expected[av_] := N[Total[av] / Length[av]] (* "Total" Folds list using addition *)
```

```
In[•]:= diePoss = {1, 2, 3, 4, 5, 6};
```

```
In[•]:= xE = Expected[diePoss]
Out[•]= 3.5
```

```
In[•]:= dE = Expected[diePoss × 2]
Out[•]= 7
```

```
In[•]:= qE = Expected[diePoss^2]
Out[•]= 15.1667
```

```
In[•]:= bE = Expected[7 - diePoss]
Out[•]= 3.5
```

```
In[•]:= Expected2[av_, rel_] := N[Total[av × rel / Total[rel]]]
```

```
In[•]:= diceSumPoss = {2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12};
        diceSumRel = {1, 2, 3, 4, 5, 6, 5, 4, 3, 2, 1};
```

```
In[•]:= sE = Expected2[diceSumPoss, diceSumRel]
Out[•]= 7.
```

```
In[•]:= diceProdPoss = {1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 15, 16, 18, 20, 24, 25, 30, 36};
        diceProdRel = {1, 2, 2, 3, 2, 4, 2, 1, 2, 4, 2, 1, 2, 2, 2, 1, 2, 1};
```

```
In[•]:= pE = Expected2[diceProdPoss, diceProdRel]
Out[•]= 12.25
```

```
Expected[2 × diePoss] == 2 × Expected[diePoss] (* [1] *)
Out[•]= True
```

```
Expected[diePoss^2] == Expected[diePoss]^2 (* [2] *)
Out[•]= False
```

```
In[•]:= Expected[7 - diePoss] == 7 - Expected[diePoss]
Out[•]= True
```

$E(X_1 + X_2)$ entspricht [1] und $E(X_1 \times X_2)$ entspricht [2]