In [3]:

```
#!/usr/bin/env python3
# -*- coding: utf-8 -*-
"""
Created on Sat Sep  7 14:54:06 2019

@author: frank
"""
import pandas as pd
import pymongo
import matplotlib.pyplot as plt

import numpy as np
import seaborn as sns
connection = pymongo.MongoClient('localhost',27017)
database = connection['db_mega']
collection = database['coll_mega']
#db = connection.testemega # outra forma para conexão no banco
print("Database connected")
data = database.coll_mega
testemegaList = data.find()

df = pd.DataFrame(list(data.find()))

deze = []
d6 = df["6_Dezena"][0:2179]
for d in d6:
    deze.append(int(d))
print(deze)
```

```
Database connected
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54, 38, 44, 24, 50, 56, 25, 44, 51, 56, 13]
```

In [4]:

```
df = pd.DataFrame({'Dezenas': deze})
```

In [5]:

```
df['Dezenas'].value_counts()
```

Out[5]:

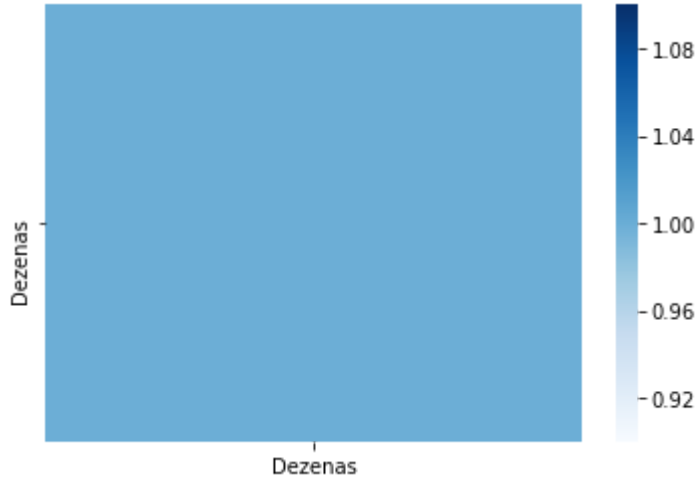
```
23    50
33    45
30    44
34    44
53    43
17    43
27    43
24    42
16    42
10    42
5     42
4     42
51    42
50    40
22    40
3     40
8     40
52    40
```

In [6]:

```
plt.figure(figsize=(6,4))
sns.heatmap(df.corr(),cmap='Blues',annot=False)
```

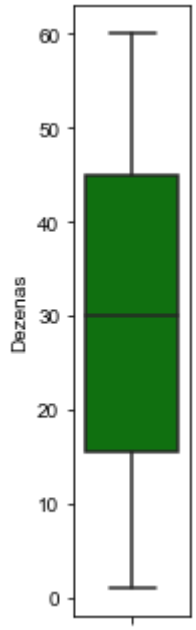
Out[6]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7fe4ffbc3ad0>
```



In [7]:

```
l = df.columns.values
number_of_columns=12
number_of_rows = len(l)-1/number_of_columns
plt.figure(figsize=(number_of_columns,5*number_of_rows))
for i in range(0,len(l)):
    plt.subplot(number_of_rows + 1,number_of_columns,i+1)
    sns.set_style('whitegrid')
    sns.boxplot(df[l[i]],color='green',orient='v')
    plt.tight_layout()
```

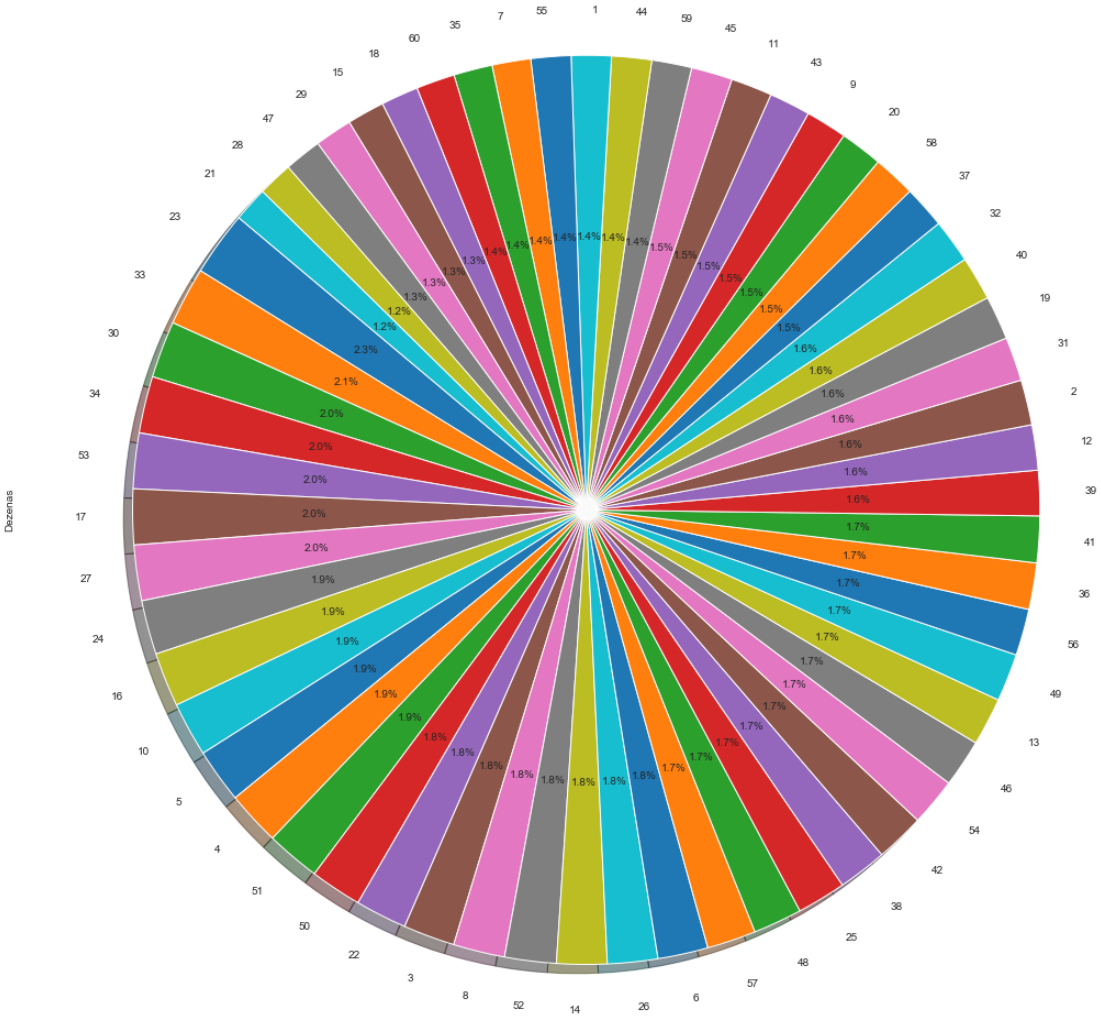


In [24]:

```
df['Dezenas'].value_counts().plot.pie(
autopct='%1.1f%%', shadow=True, startangle=140, figsize=(45, 19))
```

Out[24]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7fe4fc3c9b10>
```

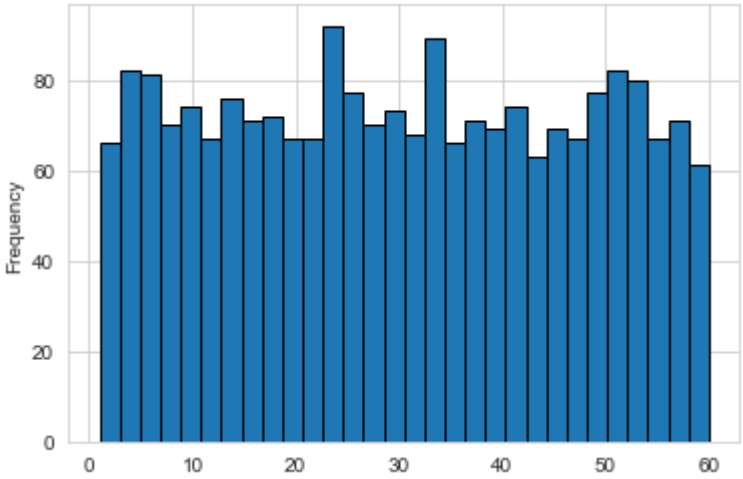


In [8]:

```
df["Dezenas"].plot.hist(bins=30, edgecolor='black')
```

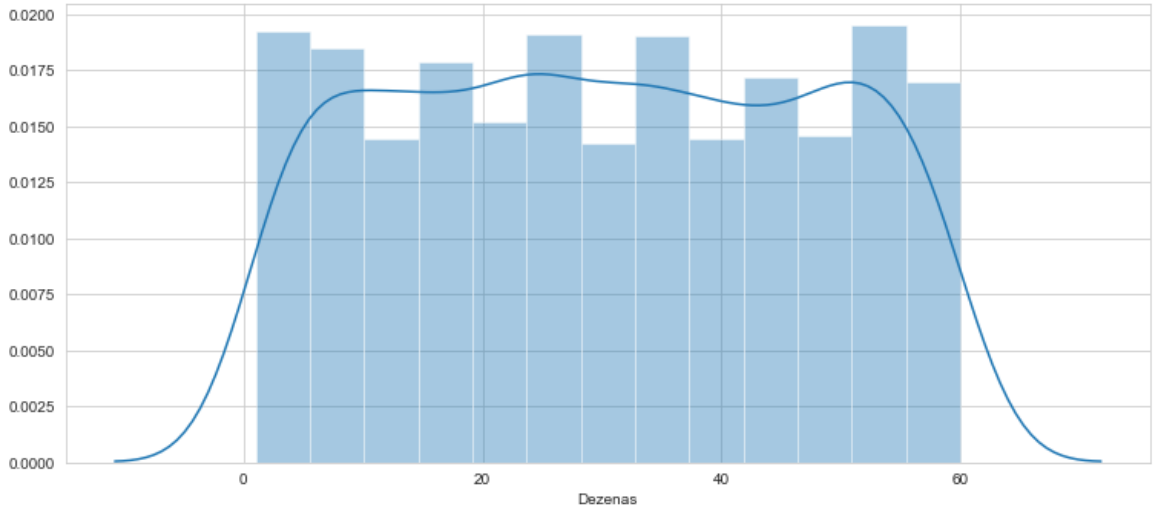
Out[8]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7fe4fc3bc8d0>
```



In [25]:

```
plt.figure(figsize=(15*number_of_columns,6*number_of_rows))
for i in range(0,len(l)):
    plt.subplot(number_of_rows + 1,number_of_columns,i+1)
    sns.distplot(df[l[i]],kde=True)
```



In [23]:

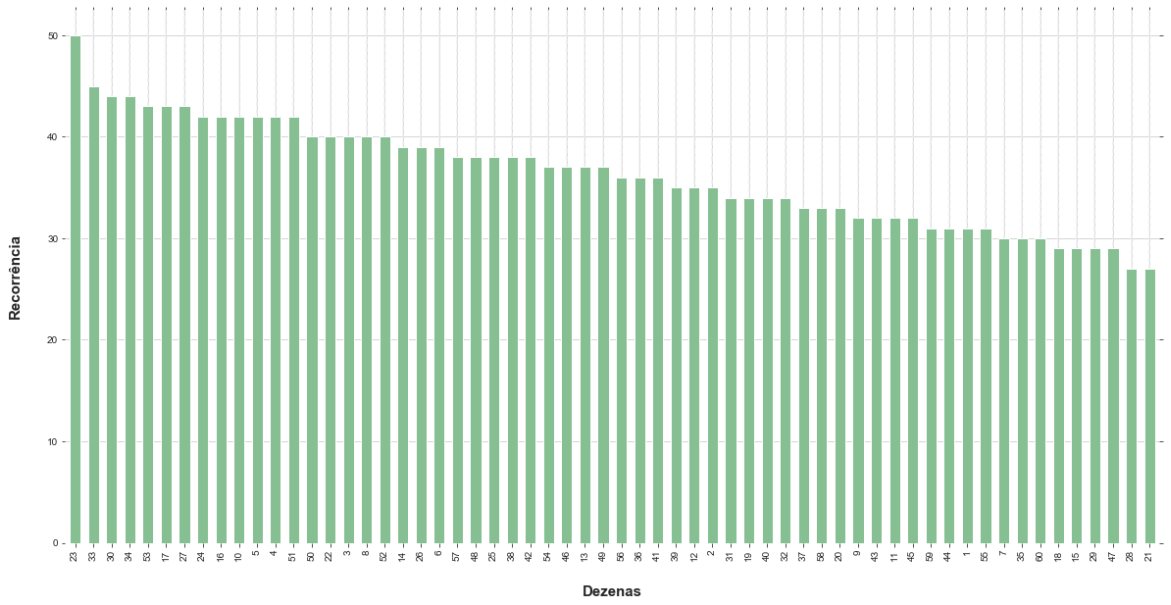
```
axdez1 = df['Dezenas'].value_counts().plot.bar(figsize=(20, 10), color='#86bf91', z
  # Despine
axdez1.spines['right'].set_visible(False)
axdez1.spines['top'].set_visible(False)
axdez1.spines['left'].set_visible(False)
axdez1.spines['bottom'].set_visible(False)

# Switch off ticks
axdez1.tick_params(axis="both", which="both", bottom="off", top="off", labelbottom=

# Draw vertical axis lines
vals = axdez1.get_xticks()
for tick in vals:
    axdez1.axvline(x=tick, linestyle='dashed', alpha=2, color='#eeeeee', zorder=4)

  # Set x-axis label
    axdez1.set_xlabel("Dezenas", labelpad=25, weight='bold', size=15)

  # Set y-axis label
    axdez1.set_ylabel("Recorrência", labelpad=25, weight='bold', size=15)
```



In [ ]: