The CLT in Action - Sampling Mean

Question:

1. Set the seed to 104.
2. Take a sample of size 20 with replacement from the `num_users` column of `amir_deals`, and take the mean.

Explanation of the Question:

This task demonstrates the central limit theorem by using random sampling techniques. By setting a random seed, the results are reproducible. Sampling with replacement mimics real-world scenarios where each data point has the possibility of being selected multiple times.

Answer:

```
import pandas as pd
import numpy as np

# Set seed to 104
np.random.seed(104)

# Assuming amir_deals is a DataFrame with a column named 'num_users'
amir_deals = pd.DataFrame({
    'num_users': [10, 15, 12, 20, 25, 30, 22, 18, 14, 19, 28, 17]
})

# Sample 20 num_users with replacement from amir_deals
samp_20 = amir_deals['num_users'].sample(20, replace=True)

# Take mean of samp_20
print(np.mean(samp_20))
```

Explanation of the Answer:

Setting the seed with `np.random.seed(104)` ensures consistent random sampling. The pandas `sample` method selects 20 values with replacement from the `num_users` column. The mean of this sample is then calculated using `np.mean()`, which provides a single value summarizing the sample.