Question 3 - For a sample space of 20 elements, the values are fitted to the line Y=2X+3, X>5. Develop an application that sets up the data and computes the standard deviation of this sample space. (use random number generator supported in your development platform to generate values of X).

In [ ]:
```python
from random import randint
import numpy as np
```

In [ ]:
```python
def generate_data(n):
    def generate_x():
        x = []
        while len(x) != 20:
            x.append(randint(6, 200))
            x = list(set(x))
        return x

    list_x = generate_x()
    return [(x, 2*x + 3) for x in list_x]
```

In [ ]:
```python
data = generate_data(20)
data
```

Out[ ]:
```
[(131, 265),
 (138, 279),
 (142, 287),
 (14, 31),
 (18, 39),
 (153, 309),
 (25, 53),
 (28, 59),
 (30, 63),
 (158, 319),
 (166, 335),
 (168, 339),
 (177, 357),
 (50, 103),
 (186, 375),
 (86, 175),
 (93, 189),
 (96, 195),
 (110, 223),
 (127, 257)]
```

In [ ]:
```python
x, y = zip(*data)
print(f"Standard deviation of the sample space is : {np.std(y)}")
```

```
Standard deviation of the sample space is : 114.54710821317141
```