

Строим графики для $T(P)$, $S(P)$, $E(P)$

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In [1]: import matplotlib.pyplot as plt
import numpy as np
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Запустим программу для $n = 20000000$, $m = 1000000$
 $P \in (1, 16)$

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In [3]: info_2 = open("stats_task2.txt").readlines()
info_3 = open("stats_for_graphs.txt").readlines()
P_2 = []
T_p_2 = []
S_p_2 = []
E_p_2 = []
time_qsort = []
P_3 = []
T_p_3 = []
S_p_3 = []
E_p_3 = []
for line in info_2:
    line = line.split()
    P_2.append(int(line[0]))
    T_p_2.append(float(line[1]))
    S_p_2.append(float(line[2]))
    E_p_2.append(float(line[3]))
    time_qsort.append(float(line[4]))

for line in info_3:
    line = line.split()
    P_3.append(int(line[0]))
    T_p_3.append(float(line[1]))
    S_p_3.append(float(line[2]))
    E_p_3.append(float(line[3]))
```

```
In [6]: plt.figure(figsize=(16, 5))
plt.title("График зависимости времени работы  $T(P)$  от  $P$ ")
plt.grid()
plt.scatter(P_2, T_p_2)
plt.scatter(P_3, T_p_3)
plt.plot(P_2, T_p_2, label='OpenMP program')
plt.plot(P_3, T_p_3, label = 'pthread program')
plt.plot(P_2, time_qsort, label="time of qsort", color='r')
plt.xlabel('P')
plt.ylabel('T_p')
plt.legend()
plt.show()

plt.figure(figsize=(16, 5))
plt.title("График зависимости ускорения  $S(P)$  от  $P$ ")
plt.grid()
plt.scatter(P_2, S_p_2)
plt.scatter(P_3, S_p_3)
plt.plot(P_2, S_p_2, label='OpenMP program')
plt.plot(P_3, S_p_3, label = 'pthread program')
plt.xlabel('P')
plt.ylabel('S_p')
plt.legend()
plt.show()

plt.figure(figsize=(16, 5))
plt.title("График зависимости эффективности  $E(P)$  от  $P$ ")
plt.grid()
plt.scatter(P_2, E_p_2)
plt.scatter(P_3, E_p_3)
plt.plot(P_2, E_p_2, label='OpenMP program')
plt.plot(P_3, E_p_3, label = 'pthread program')
plt.xlabel('P')
plt.ylabel('E_p')
plt.legend()
plt.show()
```

