

Permutasjoneer!

```
int max(int [] a) {
```

```
    int max_value = a[0];
```

```
    for (int i = 0; i < a.length; ++i) {
```

```
        => { if (a[i] > max_value) {
                max_value = a[i] //x
            }
    }
```

```
}
```

```
return max_value
```

```
{
```

$$\frac{1}{2} + \frac{1}{3} + \frac{1}{4} = \frac{6}{12} + \frac{4}{12} + \frac{3}{12} = \frac{13}{12}$$

26 ganger

29 mulige

2 tall

1, 2 1

2, 1 0

$\frac{1}{2}$ (ganger)
 $\frac{1}{2}$ (mulige)

3 tall

1, 2, 3 2

1, 3, 2 1

2, 3, 1 1

2, 1, 3 1

3, 1, 2 0

3, 2, 1 0

$\frac{5}{6}$ (ganger)
 $\frac{1}{6}$ (mulige)

$$= \frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6}$$

4 tall

1, 2, 3, 4

1, 2, 4, 3

1, 3, 4, 2

1, 3, 2, 4

1, 4, 2, 3

1, 4, 3, 2

2, 1, 3, 4

2, 1, 4, 3

2, 3, 1, 4

2, 3, 4, 1

2, 4, 1, 3

2, 4, 3, 1

3, 1, 2, 4

3, 1, 4, 2

3, 2, 1, 4

3, 2, 4, 1

3, 4, 1, 2

3, 4, 2, 1

4, 1, 2, 3

4, 1, 3, 2

4, 2, 3, 1

4, 2, 1, 3

4, 3, 1, 2

4, 3, 2, 1

$$2 \text{ tall: } \frac{1}{2}$$

$$3 \text{ tall: } \frac{1}{2} + \frac{1}{3}$$

$$4 \text{ tall: } \frac{1}{2} + \frac{1}{3} + \frac{1}{4}$$

$$5 \text{ tall: } \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5}$$

$$n \text{ tall: } \sum_{i=1}^n \frac{1}{i} = H_n \approx \underline{\log(n) + 0.577}$$

$$\frac{1}{5} = 0.2$$

$$\frac{1}{10} = 0.1$$

$$\frac{1}{100} = 0.01$$

Logaritmer

$$\log(1) = 0$$

$$\log(10) = 1$$

$$\log(100) = 2$$

$$\log(1000) = 3$$

$$\log(10000) = 4$$

$$\log(1000000) = 6$$

$$\log(10000000) = 7$$

$$n_1 = 1 \text{ million}$$

$$n_2 = 2 \text{ millioner}$$

vi går inn i if-setningen

$H_n - 1$ ganger i gjennomsnitt.

Finn maksimum algoritmeanalyse

initialisering: 2 operasjoner

for-løkke: $2n$ operasjoner

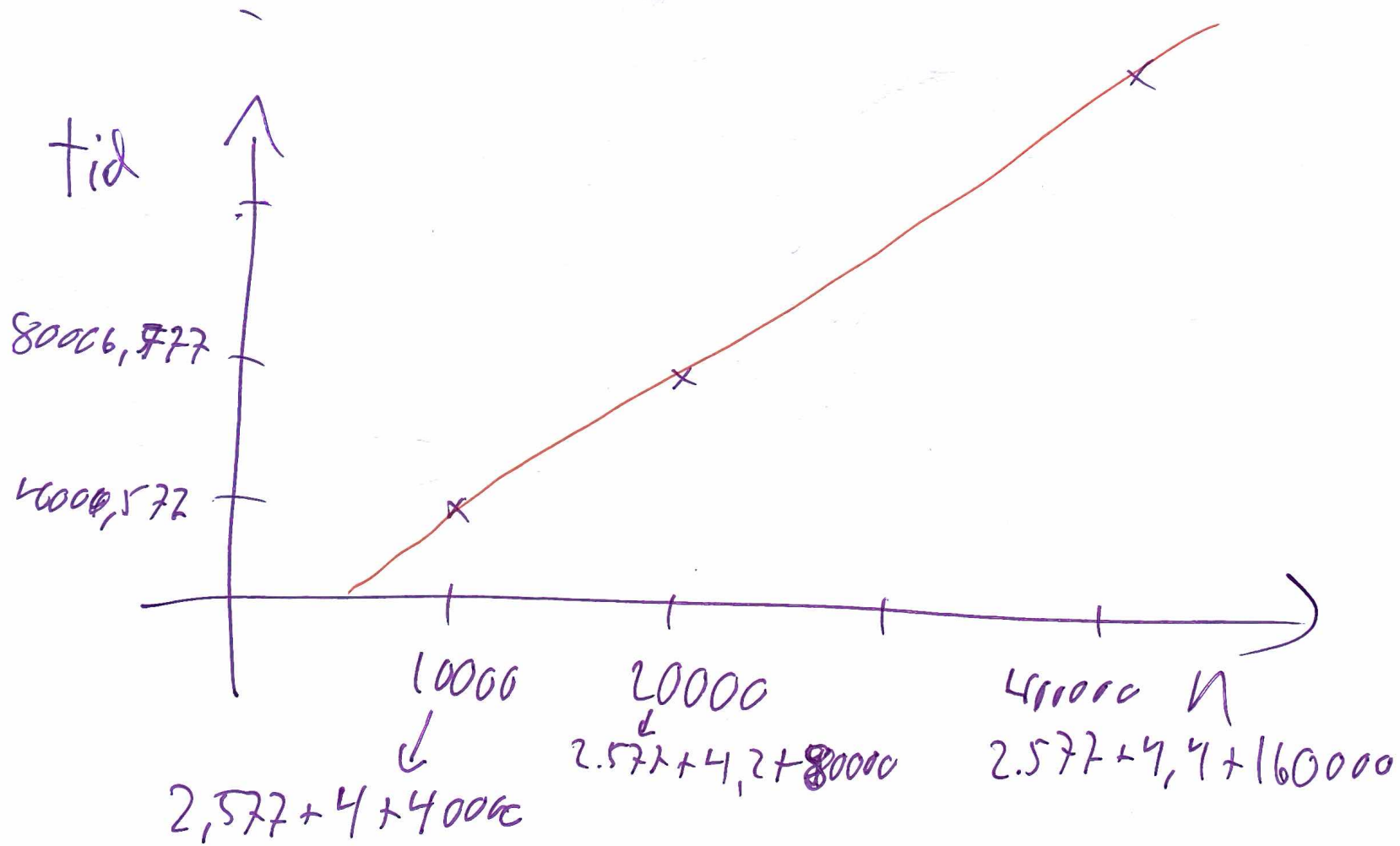
inni for-løkke if-test: $2n$ operasjoner

inni if-setning $n-1$ ganger (6 for 10 millioner) $(n-1)$

$$\Downarrow \log(n) + 0,577$$

$$\boxed{\boxed{2,577 + \log(n) + 4n}}$$

Dette er den
viktige!



Sorting

