

Worksheet 13 Solution

March 22, 2020

Question 1

- a. **Exact number of iterations:** n
Simplest theta expression: $f_1 \in \Theta(n)$

Correct Solution:

Exact number of iterations: $\frac{n}{5}$
Simplest theta expression: $f_1 \in \Theta(n)$

- b. **Exact number of iterations:** $n - 4$
Simplest theta expression: $f_2 \in \Theta(n)$

- c. **Exact number of iterations:** n
Simplest theta expression: $f_3 \in \Theta(n)$

Correct Solution:

Exact number of iterations: $\frac{\frac{n}{10}}{10} = 10$
Simplest theta expression: $f_3 \in \Theta(1)$

- d. **Exact number of iterations:** $n^2 - 20$
Simplest theta expression: $f_4 \in \Theta(n^2)$

Correct Solution:

Exact number of iterations: $\frac{n^2-20}{3}$
Simplest theta expression: $f_4 \in \Theta(n^2)$

e. **Exact number of iterations:** $n^2 - 20 + n$

Simplest theta expression: $f_5 \in \Theta(n^2)$

Correct Solution:

Exact number of iterations: $\frac{n^2-20}{3} + 100n$

Simplest theta expression: $f_5 \in \Theta(n^2)$

Question 2

Question 3