Rekursionsgleichungen demogr.

Die Rekursion $T(1) = c$, $T(n) = a \cdot T\left(\frac{n}{b}\right) + t(n)$ sei zu lösen. n ist eine Potenz der Zahl $b > 1$ und $a \geq 1$, $c > 0$ gelte.

(a) Wenn $t(n) = O\left(n^{(\log_b a) - \varepsilon}\right)$ für eine Konstante $\varepsilon > 0$, dann ist $T(n) = \Theta(n^{\log_b a})$.

(b) Wenn $t(n) = \Theta(n^{\log_b a})$, dann ist $T(n) = \Theta(n^{\log_b a} \cdot \log_b n)$.

(c) Wenn $t(n) = \Omega\left(n^{(\log_b a) + \varepsilon}\right)$ für eine Konstante $\varepsilon > 0$ und $a \cdot t\left(\frac{n}{b}\right) \leq \alpha \cdot t(n)$ für eine Konstante $\alpha < 1$, dann $T(n) = \Theta(t(n))$.

Lösung für $T(1) = \Theta(1)$, $T(n) = T(n/2) + 3 \cdot n$?

- (1) $T(n) = \Theta(n \log_2 n)$
- (2) $T(n) = \Theta(n)$
- (3) $T(n) = \Theta(n^{2/3})$
- (4) $T(n) = \Theta(n^{1/2})$
- (5) $T(n) = \Theta(\log_2 n)$

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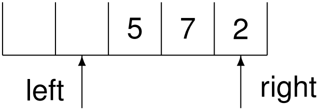
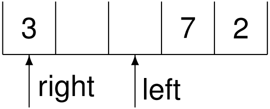
Anfangs

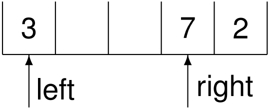


Führe removeleft() und insertright(3) aus. Danach:

(1)



(2)



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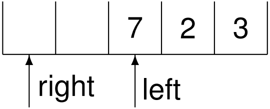

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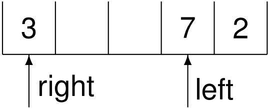
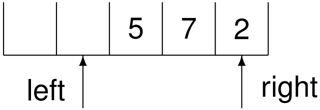


Deques im Array demogr.

Anfangs



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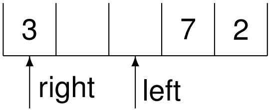
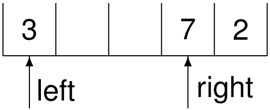


(2)



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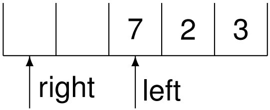

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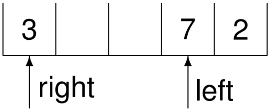
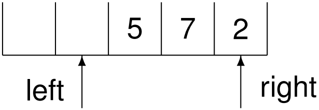


Auflösung:

Deques im Array demogr.

Anfangs



Führe removeleft() und insertright(3) aus. Danach:

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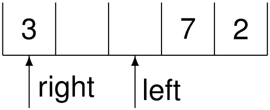
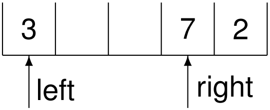


(2)



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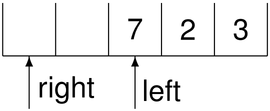
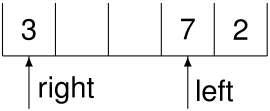
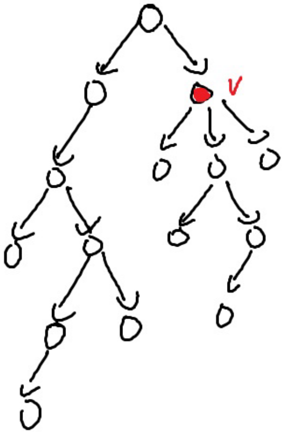


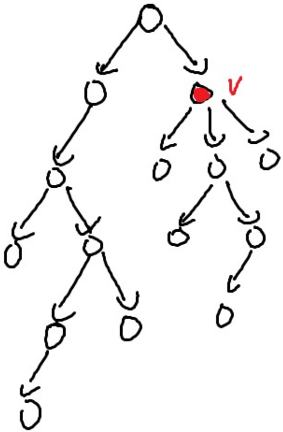
(4)



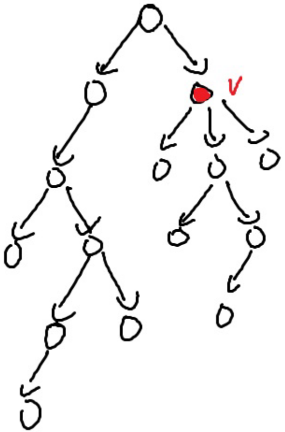
Auflösung: (1)



- Bestimme für Knoten v die

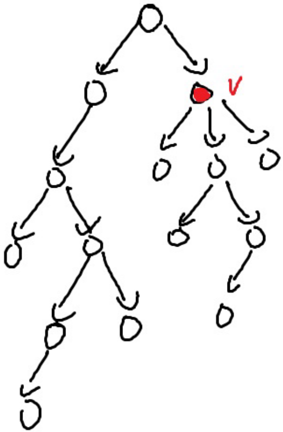


- Bestimme für Knoten v die Tiefe:

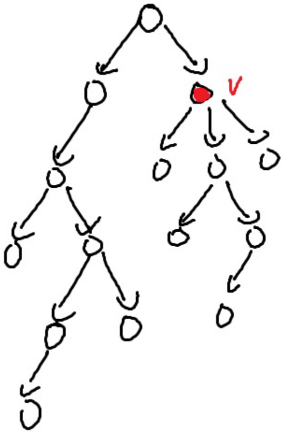


- Bestimme für Knoten *v* die Tiefe: 1

HochTief demogr.



- Bestimme für Knoten v die Tiefe: 1 Höhe:



- Bestimme für Knoten v die Tiefe: 1 Höhe: 3