

QUESTION 5.3

POINTS

 Delete Question

Delete 71

10

PROBLEM

 Insert Images  Insert FieldShow the tree operations for ``delete(71)``.

|files|

 Add Question 5.4 Add Question 6

Save

Q1 True or False

20 Points

For each of the following, is the statement true or false?

Q1.1 Root

5 Points

The root is either a leaf or has between 3 and p children.☐ True☒ False

Q1.2 Number of Children

5 Points

Each node except the root has between $\lfloor p/2 \rfloor$ and p children (which may be empty).☐ True☒ False

Q1.3 Children and Keys

5 Points

A node with j children contains j keys.

☐ True☒ False**Q1.4 Leaves**

5 Points

All leaves are not at the same level of the tree.

☐ True☒ False**Q2 Fan-out**

15 Points

Consider a B Tree with $p = 512$

Q2.1 Minumum

5 Points

The minimum number of keys a non-root node may store is

Q2.2 Maximum

5 Points

The maximum number of keys a non-root node may store is

Q2.3 Child Selection

5 Points

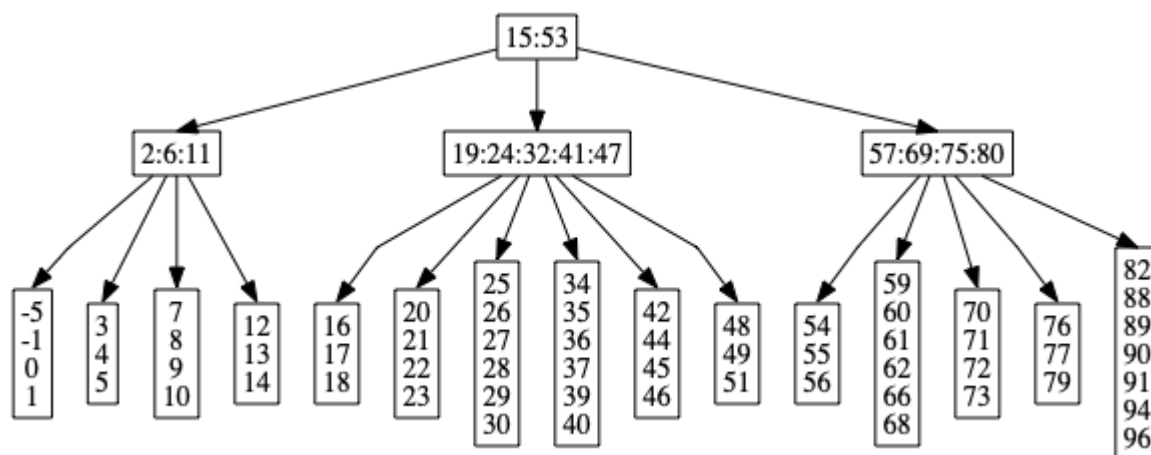
The worst case number of keys that will need to be examined in order to select the appropriate child is (rounding to the nearest integer)

9

Q3 Inferring p

5 Points

Consider the following tree:



What is the fan-out parameter p ?

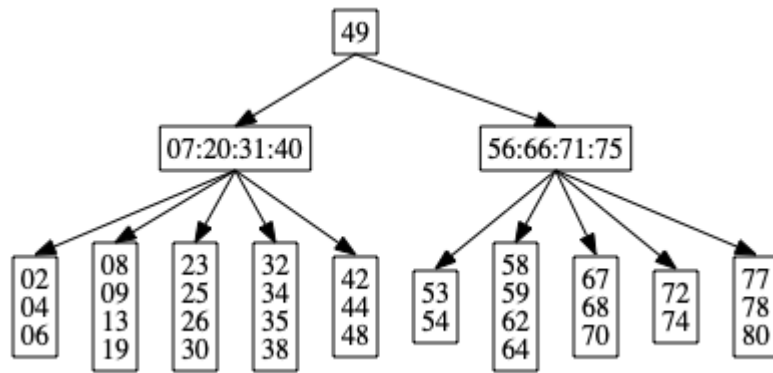
8

Q4 Insertion: I am inevitable

30 Points

For the problems below $h = 1$ and $p = 5$. Each one is on the original tree pictured.

In order to get FULL CREDIT, you MUST show all work.

**Q4.1 Insert 10**

10 Points

Show the tree operations for `insert(10)`

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Q4.2 Insert 29

10 Points

Show the tree operations for `insert(29)`

No files uploaded

Q4.3 Insert 60

10 Points

Show the tree operations for `insert(60)`

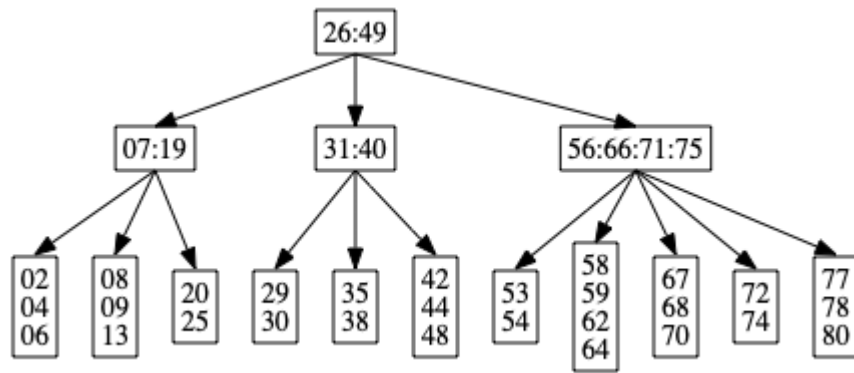
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Q5 Deletion: I am inevitable

30 Points

For the problems below $h = 1$ and $p = 5$. Each one is on the original tree pictured.

In order to get FULL CREDIT, you MUST show all work.

**Q5.1 Delete 13**

10 Points

Show the tree operations for `delete(13)`.

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Q5.2 Delete 30

10 Points

Show the tree operations for `delete(30)`.

No files uploaded

Q5.3 Delete 71

10 Points

Show the tree operations for `delete(71)`.

No files uploaded