1. (7 points) Let’s turn yet again to our favorite Diver DB example:

**Diver**\((did, \text{firstname}, \text{lastname}, \text{age})\) -- info about *Divers*

**Purchases**\((\text{did, eid, date})\) -- Divers can buy multiple equipment

**Equipment**\((\text{eid, name, price})\) -- info about *Equipment*

Consider the B+ tree index on Equipment\(\text{.price}\) pictured below:

(a) (2 pts) Draw what this index will look like after adding an equipment record that costs $39:

![B+ tree diagram]

(b) (2 pts) How many page reads will the insert operation take? How many page writes?

\[
\begin{align*}
\text{# reads: } & \text{_______} & \text{# writes: } & \text{_______} \\
\end{align*}
\]
(c) (1 pt) Suppose a frequent query asks for the maximum price of the equipments in the store. This index should be: ( ) Clustered ( ) Unclustered ( ) Either

(d) (2 pts) Draw what the original B+ Tree index from the previous page will look like after selling (removing) the piece of equipment that costs $40:

(e) (1 pts) Write a SQL query that this B+ tree index should be clustered to be as useful as possible:

(2) (2 points) Consider next the static hashed index on Diver.did pictured below:

(a) (1 pt) How many page reads will it take to locate the diver whose id is 33?
# reads: __________

(b) (1 pt) Draw what the static hashed index will look like after adding a new diver with a did of 74.