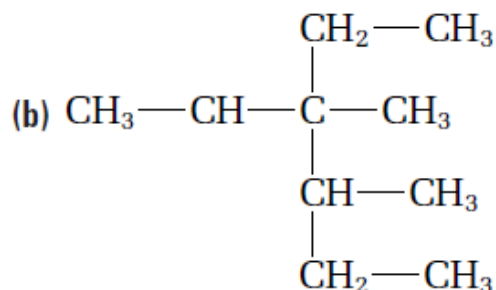
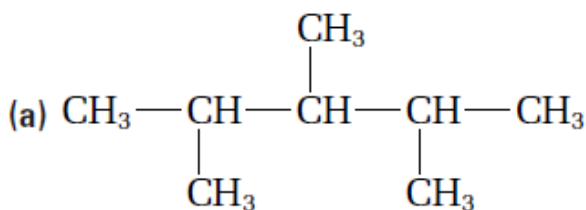


## Problem

Name the following alkanes.



## Solution

(a) **Step 1 Find the root:** The longest chain has 5 carbon atoms, so the root is -pent-.

**Step 2 Find the suffix:** The suffix is -ane.

**Step 3 Give position numbers:** It doesn't matter which end you start numbering at, the result will be the same.

**Step 4 Find the prefix:** Three methyl groups are attached to the main chain at positions 2, 3, and 4. The prefix is 2,3,4-trimethyl-.

**Step 5** The full name is 2,3,4-trimethylpentane.

(b) **Steps 1 and 2 Find the root and suffix:** There are 6 carbon atoms in the main chain. (Note that the main chain is bent at two places.) The root is -hex-. The suffix is -ane.

**Step 3 Give position numbers:** Number from the left so there are two branches at position 3 and one branch at position 4.

**Step 4 Find the prefix:** There is an ethyl group and a methyl group at position 3, and another methyl group at position 4. The prefix is 3-ethyl-3,4-dimethyl-.

**Step 5** The full name is 3-ethyl-3,4-dimethylhexane.