Worksheet 4

Name Class Date

**1** crude oil fraction contains hydrocarbons which have properties in common.

Complete the table by placing a tick (✓) or cross (🗶) in each column.

You need to decide if the property shown is exactly the same throughout all the hydrocarbons in the fraction or just similar.  
There are four ticks to place in total.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Boiling point | Ease of  ignition | Number of carbon atoms | Viscosity |
| Exactly the same throughout the fraction |  |  |  |  |
| Similar throughout the fraction |  |  |  |  |

**2** Crude oil **fractions** have different uses.

**a** Complete the table by writing the missing names and uses of each fraction into the correct boxes.

|  |  |
| --- | --- |
| Name of fraction | Use of fraction |
| r \_ \_ \_ \_ \_ \_ \_  g \_ \_ \_ \_ | domestic heating and c \_ \_ \_ \_ \_ \_ |
| gasoline (petrol) | fuel for c \_ \_ \_ |
| kerosene | fuel for a \_ \_ \_ \_ \_ \_ \_ |
| d \_ \_ \_ \_ \_ | fuel for some t \_ \_ \_ \_ \_ |
| f \_ \_ \_ o \_ \_ | fuel for some p \_ \_ \_ \_ s \_ \_ \_ \_ \_ \_ \_ |
| b \_ \_ \_ \_ \_ \_ | surfacing roads and r \_ \_ \_ \_ |

**a** Complete the sentences to state one other use for the fraction used for:

**i** Fuel for some trains could also be used as a fuel for some c \_ \_ \_.

**ii** Fuel for some power stations could also be used as a fuel for some s \_ \_ \_ \_.

**3** During the **fractional distillation** of crude oil, gasoline (petrol) vapours **condense** higher up the **fractionating column** than kerosene vapours do.

**a** Describe the change of state that happens during condensation.

g\_\_\_\_\_\_\_\_\_\_\_\_\_ to l\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**b** Complete the sentences to explain which fraction gasoline (petrol) or kerosene:

**i** has the lower boiling point?

Gasoline has the lower boiling point because it condenses higher up the fractionating column; the temperature …

**ii** contains the smaller hydrocarbon molecules?

Gasoline has the smaller hydrocarbon molecules because smaller hydrocarbons travel …

**iii** **ignites** more easily?

Gasoline ignites more easily because smaller hydrocarbons…

**iv** has the higher **viscosity**?

Kerosene has the higher viscosity because it has larger…