Appendix:

I will include images as source and reference them in for the final copy ☺

Appendix I

$$Total\ amount\ of\ petrol = \frac{13800}{100} \times 13.3$$

$$Total\ amount\ of\ petrol = 1{,}835.4\ L$$

$$Total\ amount\ of\ gas = 1{,}835.4 \times 3.169$$

be specific.

$$Total\ amount\ of\ gas = 5{,}816.3826\ kg$$

There were 17.7 million registered motor vehicles in Australia as of October 2014. Therefore, the total mass of gases released per year by Australians through vehicle emissions is:

$$= 5{,}816.3826 \times 17{,}700000$$

$$= 102949972020\ kg$$

$$1.03 \times 10^{11}\ kg$$

Appendix II

Moles of octane used when 1L of petrol is burned

$$Moles = \frac{mass}{RMM}$$

$$Mass = D \times V$$

Density of octane = 703 kg/m^3
= 0.703 g/cm^3

Volume of petrol = 1L
= 1000ml

$$\therefore Mass = 0.703 \times 1000$$
$$Mass = 703\ g$$

Find moles of octane

Relative molecular mass:

Mass of carbon = 12
Mass of hydrogen = 1

$$(8 \times 12) + (18 \times 1)$$

$$= 96 + 18$$

$$= 114\ g$$

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