b) $3 \times (40.08\ g/mol) + 2 \times (30.97\ g/mol) + 8 \times (16.00\ g/mol) = 310.18\ g/mol$

5. $n = \frac{m}{M}$ a) $\frac{50.00\ g}{53.50\ g/mol} = 0.9346\ mol$ b) $\frac{50.00\ g}{310.18\ g/mol} = 0.1612\ mol$

6. $m = n \times M$

SrO: M

$\frac{87.62\ g}{mol} + \frac{16.00\ g}{mol} = 103.62\ g/mol \rightarrow m = n \times M$ $m = 0.275\ mol \times \frac{103.62\ g}{mol}$

$= 28.5\ g$

K_2S: M

$2(39.10\ g/mol) + 32.07\ g/mol = 110.27\ g/mol \rightarrow m = n \times M = 0.185\ mol \times \frac{110.27\ g}{mol}$

$= 20.4\ g$

mass SrO > mass K_2S

7. molecules → moles → mass

$n = \frac{N}{N_A} = \frac{4.5 \times 10^{24}\ molecules}{6.02 \times 10^{23}\ molecules/mol} = 7.4_8\ mol$

M: $28.09\ g/mol$
$+2(16.00\ g/mol)$
$60.09\ g/mol$

$m = n \times M = 7.4_8\ mol \times \frac{60.09\ g}{mol}$

$= 450\ g$

8. Avg Mass = $(mass_1)(\%_1) + (mass_2)(\%_2)$ .....

The mass of isotopes in the universe are universal! However, the average mass of an element may vary throughout the universe since the abundances (%) of each isotope may vary from location to location.