CITY OF LIVERPOOL

EDUCATION COMMITTEE

NAME J. Allday.

FORM or CLASS L6 Science 1.

SUBJECT Maths.

$$r = 19 \cdot 8^n + 17$$

$$\cancel{19 \cdot 8 + r = 19 \cdot 8^n + 19 \cdot 8 + 17}$$

$$= \cancel{8 \cdot 19}$$

$$8r - 17 \cdot 8 + 17 = 19 \cdot 8^{n+1} + 17$$

$$\boxed{8r - 17 \cdot 8 + 17} = 19 \cdot 8^{n+1} + 17.$$

$$8r - 17 \cdot 7$$

$$19 \cdot 8^{n+1} + 17$$

$$(1+7)r - 17 \cdot 7$$

$$r + 7(r - 17)$$

$$\frac{19 \cdot 8^{n+1} + 17}{19 \cdot 8^n + 17} = ?$$

$$r = (17 + 2)8^n + 17$$
$$= 17 \cdot 8^n + 2 \cdot 8^n + 17$$
$$\equiv 2 \cdot 8^n \pmod{17}.$$

$a^p \equiv a \pmod{p}$ a

$r_n = 2\cdot 8^n \pmod{17}$.

$r_{n+1} = 2\cdot 8^{n+1} \pmod{17}$.

$\therefore\ r_{n+1} = 8 r_n \pmod{17}$.

$19\cdot 8^{n+1} + 17$

$(17+2)\, 8^{n+1} + 17$

$2\, 8^{n+1} \pmod{17}$.

$r_n = \cancel{4}.\, 2\cdot 8^n + 17k$.

$8r_n = 2\cdot 8^{n+1} + 17\cdot 8k$

$\cancel{17\cdot 8^{n+1} + 17}$

$17\cdot 8^n + 17$ $\qquad k = (1+8^n)$

$17(1+8^n)$

$17\cdot 8 + 17\cdot 8^{n+1}$

$8r - 17\cdot 8 + 17$

$19\cdot 8^{n+1} + \cancel{17\cdot 8} - \cancel{17\cdot 8} + 17$

$$r_n = 19.8^n + 17.$$
$$= (17+2)8^n + 17$$
$$= 17.8^n + 2.8^n + 17$$
$$\equiv 2.8^n \pmod{17}.$$

$$\begin{array}{r} 17 \\ 7 \\ \hline 119 \end{array}$$

$$r_{n+1} = 19.8^{n+1} + 17$$
$$= (17+2)8^{n+1} + 17$$
$$= 17.8^{n+1} + 2.8^{n+1} + 17$$
$$\equiv 2.8^{n+1} \pmod{17}$$

$8r_n - 17.8 + 17$

$8r_n - 7.17$

$8r_n - 119$

$\therefore\ r_{n+1} = 8(r_n \pmod{17}))$

Let $n = 0$ $\quad r = 19 + 17$
$= 36$

$\therefore$ it is not prime

$\therefore$ for all n it is not prime.

$$r_{n+1} = 8\left\{ 2.8^{n} + 17(1+8^n)\right\}$$
$$= 2.8^{n+1} + 17.8 + 17.8^{n+1}$$

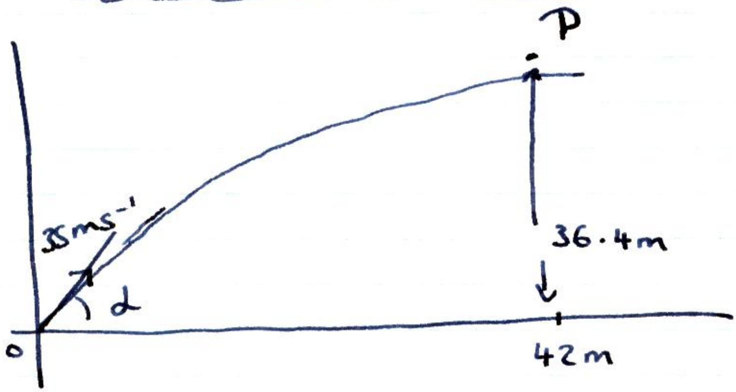
$$r_{n+1} = (1+7)r_n - 17.7$$
$$= r_n + 7r_n - 17.7$$

$$r_n = 19.8^n + 17$$

$$= (17+2)8^n + 17$$

$$= 17(1+8^n) + 8^n.2$$

1.



vert.

$\cancel{v^2 = u^2}$

$\cancel{v^2 = u^2 - 2as}$

$$s = ut - \tfrac{1}{2}at^2$$

$$36.4 = (35\sin\alpha)t - \tfrac{1}{2}\times 9.8t^2.$$

hориз

$\underline{\text{horiz}}$ $\cancel{v =}$

$$s = ut$$

$$42 = 35\cos\alpha\, t$$

$$t = \frac{\cancel{42}\,6}{\cancel{35}_5\cos\alpha}$$

$2\sqrt{42^2}$

$$\frac{42\times 42}{2}$$

$$= 21\times 42$$

$$36.4 = 42\tan\alpha - \frac{1}{\cancel{2}}\times\frac{9.8\times \cancel{42^2}^{\,21\times 42}}{35^2\cos^2\alpha}$$

$$= 42\tan\alpha - \frac{9.8\times 21\times 42\sec^2\alpha}{35^2}.$$

$$18.2 = 21\,\mathrm{Tan}\,\alpha - \frac{9.8 \times \cancel{21}^2\ 3^2}{\cancel{35^2}\ 5^2}\left\{1 + \mathrm{Tan}^2\alpha\right\}.$$

$$= 21\,\mathrm{Tan}\,\alpha - \frac{9.8 \times \cancel{21}^2}{\cancel{35}^2} - \frac{9.8 \times \cancel{21}^2}{\cancel{35}^2}\mathrm{Tan}^2\alpha$$

$$\frac{9.8 \times 21^2}{35^2}\mathrm{Tan}^2\alpha - 21\,\mathrm{Tan}\,\alpha + \frac{9.8 \times 21^2}{35^2} - 18.2 = 0$$

$$3.528\,\mathrm{Tan}\,\alpha - 21\,\mathrm{Tan}\,\alpha - 14.622 = 0.$$

$$\mathrm{Tan}\,\alpha = \frac{21 \pm \sqrt{21^2 + 4 \times 3.528 \times 14.622}}{2 \times 3.528}$$

$$= \frac{21 \pm \sqrt{648.051264}}{7.056}$$

$$\therefore\ \mathrm{Tan}\,\alpha = 7.151$$

$$\text{or} =$$

$f_{30} = f_1\{f_{29}(x)\}$

$f_0 = f_1\{f_{29}(x)\}.$

$f_{40} = f_1\{f_{39}(x)\}$

$\boxed{f_{10} = f_1\{f_{39}(x)\}}.$

$= f_1\{f_9(x)\}$

$= f_1\{f_9\}$

$f_{39}(x) = f_9(x)$

f_{39} ∴

$38 = 8$

$37 = 7$

$36 = 6$

$30 = 0$

$f_0(x) = f_{20}(x).$

$f_0(x) = f_{30}(x)$

$f_n(x) = f_{30+n}(x).$

$\rightarrow f_{10}(x) = f_{40}(x) \leftarrow$

$f_{20}(x) = f_{30}(x)$

$f_{30}(x) = f_{60}(x) = f_0(x)$

$\boxed{f_{10}(x) = f_{40}(x)}$

$f_{30}(x) = f_0(x)$

$f_n = f_{30+n}$

$\cancel{f_{11} = f_{41}}$

$f_{20} = f_{50}$

$f_{30} = f_{60} = \cancel{f_{30}} = f_0$

$$f_{n+1}(x) = f_1\{f_n(x)\}.$$

$$f_{30+n}(x) = f_n(x).$$

$$f_0(x) = f_{30}(x).$$

$$\boxed{f_{10} = f_{20}}$$

$$f_{n+1}(x) = f_1\{f_{30+n}(x)\}.$$

$$= \cancel{f_1\{}$$

$$f_{n+1}(x) = f_{31+n}(x)$$

$$f_{10} = f_{40}$$

$$f_n(x) = f_1\{f_{n-1}(x)\}.$$

$$f_{10}(x) = f_1\{f_9(x)\}.$$

$$\therefore f_{30}(x) = f_1\{f_{29}(x)\}.$$

$$f_0(x) = f_1\{f_{29}(x)\}.$$

$$f_{40}(x) = f_1\{f_{39}(x)\}.$$

$$f_{39}(x) = f_9(x)$$

$$\therefore f_{40}(x) = f_{10}(x)$$

$$x = 9$$

$f_0 \rightarrow f_{30} \rightarrow f_{40} \rightarrow f_{50} \rightarrow$

$f_1 \rightarrow f_{31} \rightarrow f_{41} \rightarrow f_{51}$

$f_2 \rightarrow f_{32}$

$f_3 \rightarrow f_{33}$

$f_{10} \rightarrow f_{40} \rightarrow f_{50} \rightarrow$

$\therefore \quad f_{10} \rightarrow f_{30}$

but $f_{100} \rightarrow f_{30}$

$$\left\{\begin{array}{l} f_5 = f_{35} \\ \therefore\ f_4 = f_{34} \\ f_7 = f_{37} \end{array}\right\}$$

$f_{28} \rightarrow f_4$

$\cancel{f_{30} = f_0}$

$\cancel{f_6 \rightarrow f_{36}}$

$\cancel{f_2 \rightarrow f_{37}}$

$\cancel{f_8 \rightarrow f_{38}}$

$\cancel{f_9 \rightarrow f_{39}}$

$\cancel{f_{10} \rightarrow f_{40}}$

$\cancel{f_{30} \rightarrow f_{40}}$

$\cancel{\therefore\ f_{30} \rightarrow f_{10}}$

$36 \rightarrow 30 \rightarrow 24 \rightarrow 18 \rightarrow 12 \rightarrow 6$

$f_{20} = f_2$

$f_5 = f_{35}$

$f_6 = f_{36}$

$f_7 = f_{37}$

$$\boxed{\begin{array}{l} f_{10} = f_{40} \\ f_0 = f_{30} \end{array}}$$

$f_{30+n} = f_n$

$f_{40} = f_{10}$

$f_{10} = f_1\{f_9(x)\}$

$f_{40} = f_1\{f_{39}\}.$

$f_{39} = \cancel{f_1\{f_{38}\}}\ f(9)$

$\cancel{= f_1}$

$f_{40} = f_1(f_9)$

$f_9 = f_{39}$

$f_8 =$

$f_0 = f_{30}$

$f_1 = f_1\{f_{30}\}$

$f_1 = f_1\{f_0\}$

$= f_1\{f_{10}\} = f_{11}$

$\cancel{f_0 = f_1\{}$

$f_1 = f_{11}$

$\cancel{f_0 = f_{10}}$

$f_2 = f_{12} = f_{32}$

$f_{10} = f_{20}$

$$\cancel{f_0 \quad f_4(x)}$$

$$\boxed{\begin{aligned} f_n &= f_{n-6r} \\ f_{10} &= 4 \\ f_{20} &= f_{14} = f_8 = f_2 \\ f_{30} &= f_{24} = f_{18} = f_{12} = f_6 = f_0. \\ f_{40} &= f_{34} = f_{28} = f_{22} = f_{16} = f_{10} \\ &= f_4. \end{aligned}}$$

$$f_{n+1} = f_1(f_n)$$

$$f_{35} = f_5$$

$$f_{30+n} = f_n$$

$$f_0 = x$$

$$f_{10} = f_{40}$$

$$f_{30} = f_0$$

$$f_{10} = f_1(f_9)$$

$$f_{40} = f_1(f_{39})$$

$$f_{39} = f_9$$

$$f_6 = f_1(f_5)$$
$$f_5 = f_1(f_4)$$
$$f_4 = f_1(f_3)$$
$$f_3 = f_1(f_2)$$
$$f_1 = f_1(f_0)$$

$$f_6 = f_1 f_1 f_1 f_1 f_1 f_1 f_0$$

$$\cancel{f_n(x)} = \cancel{n\{2x} - 1\}_{x+1}$$

$$f_2 = \frac{2\{2x - 1\} \cancel{+} \{\cancel{2x -} 1\}}{2x - 1 \quad + x + 1}$$

$$= 4x$$

$$f_{35} = f_5.$$

$$f_7 = f_{37}$$
$$f_{10} = f_{40}$$

$f_1 = f_7$

$$f_{35} = f_5$$

$$f_{n+1} = f_1(f_n)$$

$$f_1 = \frac{2x-1}{x+1}$$

$$f_{36} = f_1(f_{35}))$$
$$= f_1(f_5) = f_6$$

$$f_9 = f_1\{f_8\}$$
$$= f_{39}$$

$$f_{20} = f_1\{f_{29}\}.$$

$$\cancel{f_{29} = f_1\{f_{28}\}}.$$

$$\cancel{f_{29}}-$$

IF

$$f_{35} = f_5$$
$$f_{30} = f_0 = x$$
$$f_{34} = f_4$$
$$f_{33} = f_3$$
$$f_{32} = f_2$$
$$f_{31} = f_1$$
$$f_{30} = f_0$$
$$\boxed{f_{35} = f_5}$$
$$f_{36} = f_6$$
$$f_{37} = f_7$$
$$f_{38} = f_8$$
$$f_{39} = f_9$$
$$f_{40} = f_{10}$$

$$f_{30} = f_1\{f_{29}\}. = \cancel{f_{100}}\ f_0$$

$$f_0 = f_1\{f_p(x)\}.$$

$$f_1 = f_1\{f_0\}.$$

$$x = f_1\{f_p(x)\}$$

$$x = \frac{2f_p - 1}{f_p + 1}$$

$$x\{f_p + 1\} = 2f_p - 1$$

$$xf_p - 2f_p = -1 - x$$

$$f_p(x-2) = -1 - x = -(1+x)$$

$$\therefore \quad f_p = \frac{-(1+x)}{x-2} = \frac{1+x}{x+2}$$

$$f_1(x) = f_1\{f_0(x)\}$$

$$\therefore \quad f_0(x) = x.$$

$$f_0(x) = f_1\{f_p(x)\}.$$

$$x = \frac{2f_p - 1}{f_p + 1}$$

$$x\{f_p + 1\} = 2f_p - 1$$

$$\cancel{x} \quad f_p(x-2) = -1 - x = -(1+x)$$

$$f_p = \frac{1+x}{x+2}.$$

$$f_{n+1} = f_1\{f_n\}.$$

$$f_{35} = f_5.$$

$$f_0 = x$$

$$f_1 = \frac{2x-1}{x+1}$$

$$f_{28} = ?$$

$$f_{28} = f_1\{f_{27}\}.$$

$$f_{29} = f_1\{f_{28}\}.$$

$$f_{35} = f_1\{f_{34}\} = f_1\{f_4\}.$$

$$f_4 = f_{34}.$$

$\therefore$ $f_{30} = f$ [redacted] $_0 = x$

$\therefore$ $f_{29} = f_p.$

$$f_{28} = f_{p-1}$$

$\cancel{f_{40} = f_{10}}$

$\cancel{f_{50} = f_{20}}$

$2x-1$

$= 2(x+1) - 3$

$= \frac{2x}{x+1}$

$2 - \frac{3}{x+1}$

$=$

$\cancel{f}$

$\cancel{f_1(1) = 0.5}$
$\cancel{f_2(1) = 0}$
$\cancel{f_3(1) = -1}$
$\cancel{f_4(1) =}$
$\cancel{f_5(1) =}$
$\cancel{f_6(1) =}$
$\cancel{f_7(1) =}$
$\cancel{f_8(1) =}$
$\cancel{f_9(1) =}$
$\cancel{f_{10}(1) =}$

$$f_{n+1} = f_1\{f_n\}.$$

$$f_{35} = f_5$$

$$f_{28} = ?$$

$$f_{n+1} = \frac{2f_n - 1}{f_n + 1}$$

$$= \frac{2(f_n+1) - 2}{f_n + 1}$$

$$= 2 - \frac{2}{(f_n+1)}$$

$$f_1'(x) = \cancel{(x+1)(2x-1)}$$

$$= \frac{(x+1)(2) - (1)(2x-1)}{(x+1)^2}$$

$1+n =$

$$= 2x + 2 - 2x + 1$$

$$= \underline{\underline{+ \cancel{1}\ 3 = 0}}$$

$n = 7 + A$

$(7+n) =$

$1(+n)$

$$f_{n+1} = f_1\{f_n\}.$$

$$f_{7+1} = f_1\{f_7\}.$$

$\cancel{f_{7+A} = f_1\{}$

$f_7 = f_1$

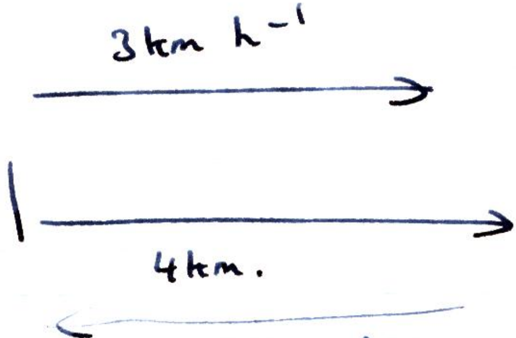
$f_8 = f_2$

28

$$f_1(x) = 2 - 3/x+1$$

$$f_2(x) = 2 - 3/_{2-3/x+1}+1$$

4.



If speed of boat $= x$ km h^{-1}

$\therefore$ downstream total $= (x+3)$ km h^{-1}

$\therefore$ upstream total $= \cancel{(x-3)}$ km h^{-1}

$= (3-x)$

$$\therefore \quad \frac{4}{x+3} + \frac{4}{\cancel{3-x}\ x-3} = 1$$

$$4(x-3) + 4(x+3) = x^2 - 9$$

$$4x - \cancel{12} + 4x + \cancel{12} = x^2 - 9$$

$$8x = x^2 - 9$$

$$x^2 - 8x - 9 = 0$$

$$(x-9)(x+1) = 0$$

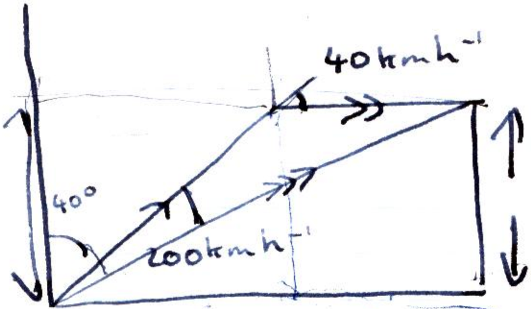
$\therefore x = 9$ or -1

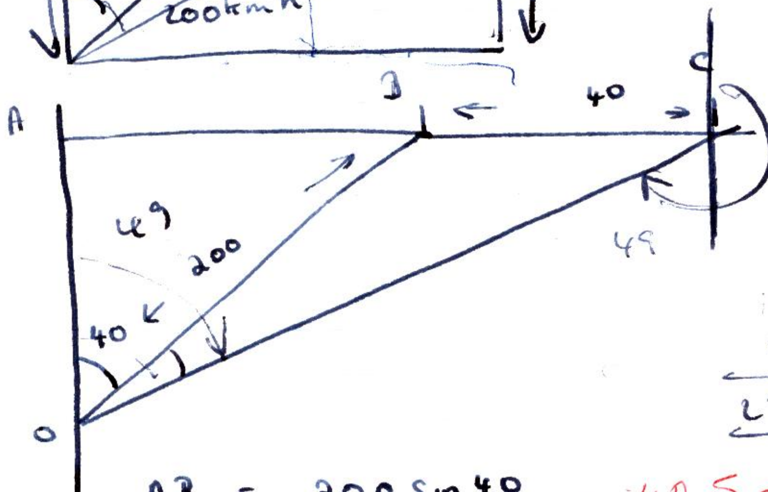
Ratio $= \dfrac{x+3}{x-3} = \dfrac{12}{6} = 2$

or $= \dfrac{2}{-4} = 1/2$

$\dfrac{x-3}{x+3} = 4/2 = 2$

Prove $f_n = f_n (\mathrm{mod}\, 6)$





$$\begin{array}{r} 180 \\ 49 \\ \hline 229 \end{array}$$

$AB = 200 \sin 40$ $= 40.5 \sin 40$

$\therefore \ AC = 40 + 200 \sin 40 = 40(1 + 5 \sin 40)$

$OA = 200 \cos 40.$

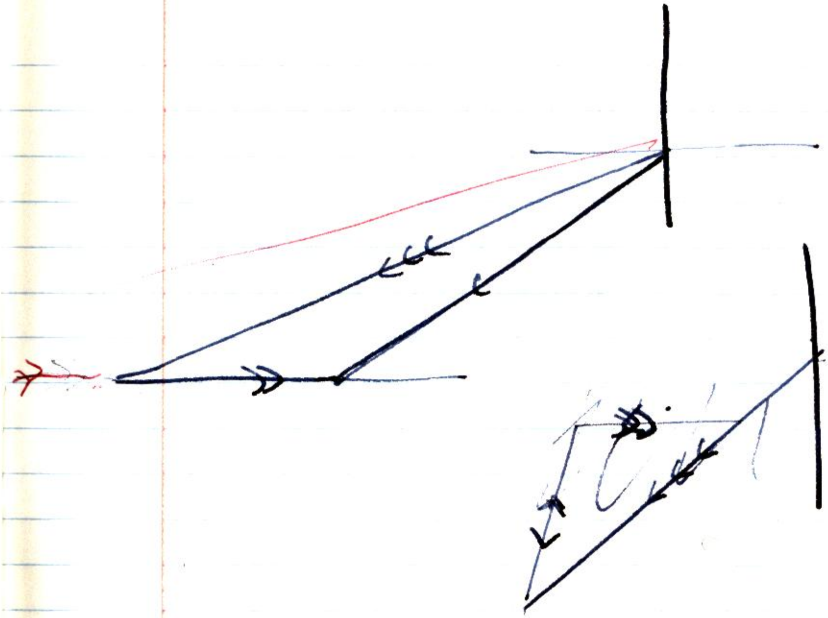
$$\tan\theta = \frac{\overset{2}{\cancel{40}} + \overset{1}{\cancel{200}} \sin 40}{\underset{1}{\cancel{200}} \cos 40}$$

$= 2 \sec 40 + \cancel{10} \tan 40$

$= \cancel{85°.8}$

$84°.8°$

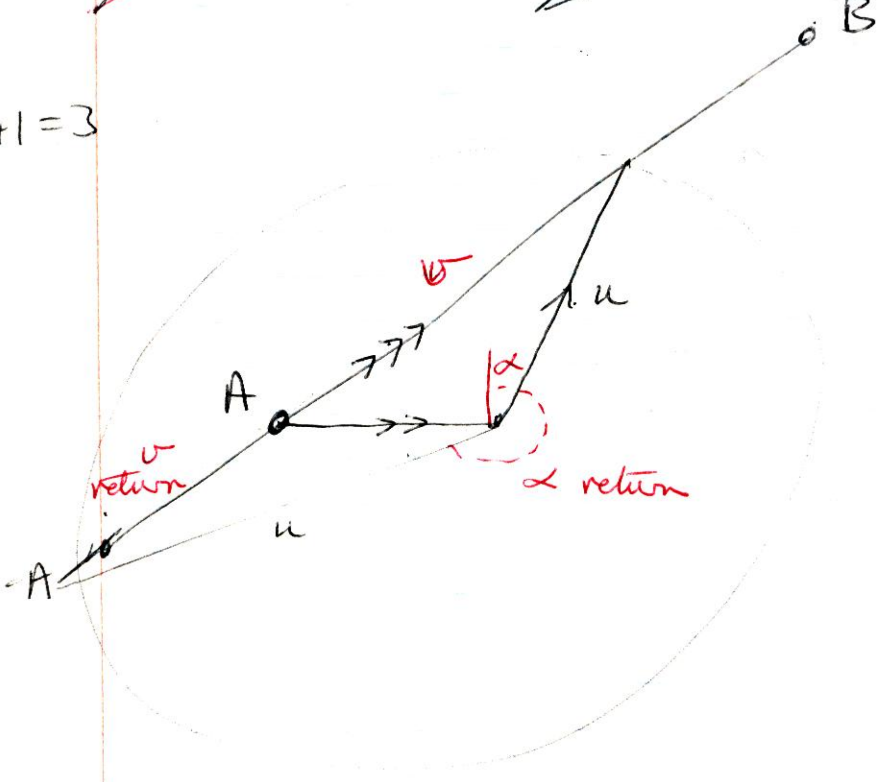
$= 84°\ 48'.$

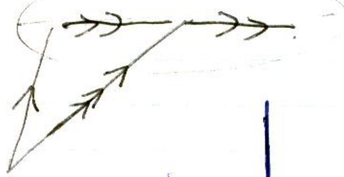


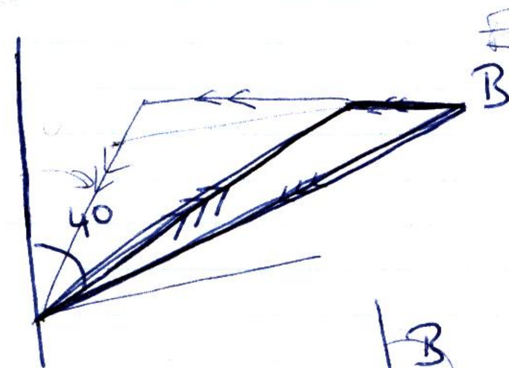

α
u
steer
β
w
wind
γ
w
track
u rel to ground

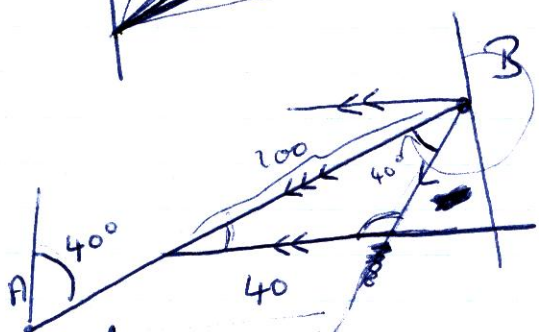

u
w
γ
w
u
β
w
v

2+1=3


B
v
u
α
A
v
return
α return
u
A



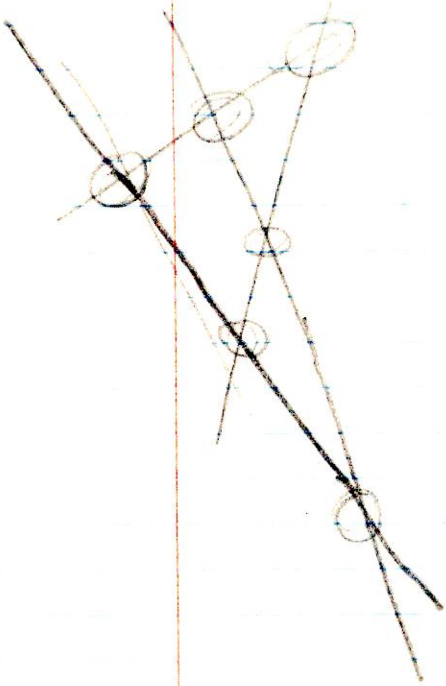




$$\frac{40}{\sin 40} = \frac{200}{\sin\theta}$$

$$\sin\theta = \frac{200\sin 40}{40} = 10\sin 40$$

$$\frac{40}{\sin 40} = \frac{200}{\sin\theta}$$



$$\frac{1}{1-x}$$

$$f_1(x) = \frac{2x-1}{x+1}$$

$$f_{n+1}(x) = f_1\{f_n(x)\}.$$

$$f_{35}(x) = f_5(x).$$

$P_A V = n_A^* RT$ $\quad$ $P_B V = n_B^* RT$

$P_B + P_A = P$ $\quad$ $x_A + x_B = 1$

$x_A^* + x_B^* = 1$

$P = x_A P^o_A + x_B P^o_B$

~~x_A^* = No moles of A in gas~~

n_A = no of moles of A in unit volume of liquid

n_B = no of moles of B in unit volume of liquid

n_A^* = same in vap.

n_B^* = " " "

$$x_A^* = n_A^* / n_B^* + n_A^* \qquad \left\{ \begin{array}{l} n_A^* = \dfrac{P_A V}{RT} \\ \\ n_B^* = \dfrac{P_B V}{RT} \end{array} \right.$$

$$= \frac{P_A}{P_A + P_B}$$

$$= \frac{P_A}{P} = \frac{x_A P_A^o}{x_A P_A^o + x_B P^o_B} = \cancel{\frac{1}{1 + \frac{x_B}{x_A} \times \frac{P^o_B}{P^o_A}}}$$

$$\frac{x_A^*}{x_A} = \frac{P_A^o}{x_A P_A^o + \frac{x_B}{\cancel{x}} \frac{P^o_B}{\cancel{x_A}}} = \cancel{\frac{1}{1 + \frac{x_A}{x_A} \frac{P^o_B}{P^o_A}}}$$

$$= \frac{1}{x_A + \frac{x_B P^o_B}{P^o_A}} = \frac{\text{mole fract of A in vap}}{\text{mole fract of A in liquid}}$$

I $\quad$ $P^o_B = P^o_A$ Then $x_A = x_A^*$.

Total no of moles $= x\left[\dfrac{1}{153.8} + \dfrac{1}{169.9}\right]$

$$x_{CCl_4} = \frac{\dfrac{x}{153.8}}{x\left[\dfrac{1}{153.8} + \dfrac{1}{169.9}\right]} = 0.525.$$

$$x_{SiCl_4} = 1 - x_{CCl_4} = 0.475.$$

$$\text{Total } P = x_{CCl_4} P^o_{CCl_4} + x_{SiCl_4} P^o_{SiCl_4}$$

$$= 0.525 \times 114.9 + 0.475 \times 238.3$$

$$= \underline{173.53 \text{ mm Hg}}$$

Comp of vap relative to comp of liquid mix.

P_A^o = SVP of A P_B^o = SVP of B

x_A = mole fract of A in the liquid

x^*_A = " " " " " " vap.

x_B = " " " B " " liquid

x^*_B = " " " " " " vap.

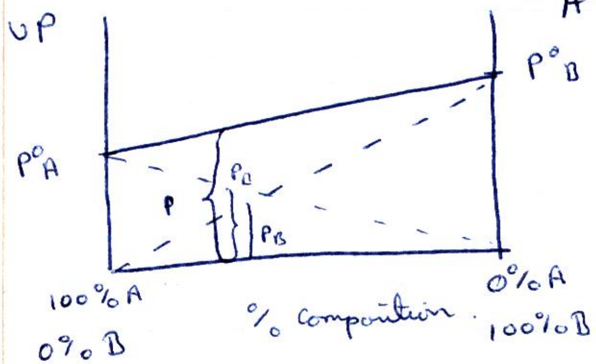
P = Total pressure of vapour.

Provided ideal liquid + ideal vapours then can write down:

and $x_A + x_B + x_C + \dots = 1$

$$\text{vap.}\left\{P_{TOT}\right\} = P_A + P_B = \cancel{x_A +}$$
$$= x_A P^\circ_A + x_B P^\circ_B.$$

Ideal case.



$P = P_A + P_B.$

Obviously B is more volatile than A ie has a lower b pt.

The Vapour Pressure of Pure CCl_4 and $SiCl_4$ at 25°C are 114.9 and 238.3 mm Hg. Assuming ideal behaviour calculate total V. P. of a mixture of each weights of the 2 liquids.

x gms of each liquid
CCl_4 ~~M~~ wt = 153.8.
$SiCl_4$ mwt = 169.9.

N° of moles of CCl_4 = $\dfrac{x}{153.8}$

" " " " $SiCl_4$ = $\dfrac{x}{169.9}$

*

However molecules returning from the vapor to the liquid will have exactly the same chance as for the pure liquid system $\therefore$ has less chance of getting out than getting back in again. So ~~pressure~~ partial pressure of A is less than the S.V.P of pure A + similarly for B.

Because there is the statistical relation

$$P_A = \cancel{\frac{n_A}{A_{(A+B)}} \times P_A^\circ} = \frac{n_A}{n_A + n_B} P_A^\circ$$

vapor pressure $P_B = \dfrac{n_B}{n_A + n_B} \times P^\circ_B$.

Mole fraction . if have a mixture of liquids A, B, C D . . mole fraction of A (X_A)

$$X_A = \frac{n_A}{n_A + n_B + n_C + n_D + \ldots}$$

$$X_B = \frac{n_B}{\sum_A n_z}.$$

$$\therefore \left.\begin{aligned} P_A &= X_A \, P^\circ_A \\ P_B &= X_B \, P^\circ_B \end{aligned}\right\} \text{Raoult's law.}$$

Assume vapour above liquid is ideal then

$$P^\circ_A \times V = n^*_A RT.$$

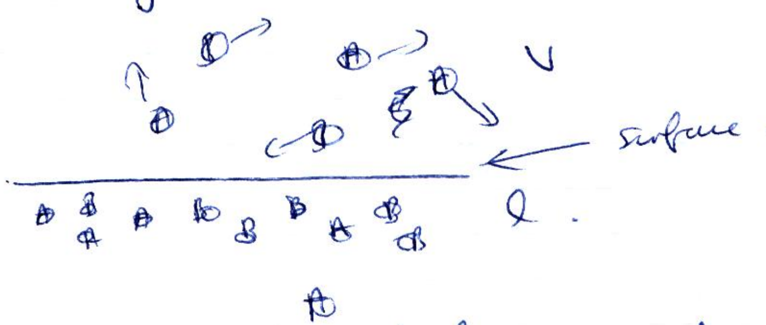
moles of vapour.

S.V.P Similarly for B.

Consider mixture of A with B @ const temp in equilibrium with the vapour above the liquid. Assume in liquid – n_A moles of A n_B moles of B and in vapour n_A^* moles of A and n_B^* moles of B per unit volume.

i). Again 2 dynamic equilibria are set up

Taking A



Only liquid molecules @ surface can escape into the vapour provided the forces of attraction A–A, B–B, A–B are similar it is obvious that chance of A escaping into vapour is ~~the same as that~~ reduced by the presence of B + statistical relation between chance of A escaping ~~and B~~ and amount ~~in vapour~~ of A to B in liquid.

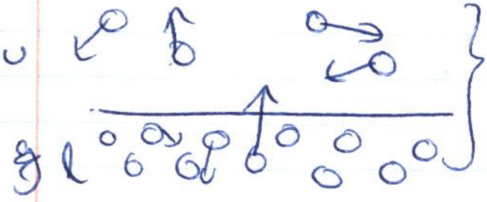
i). Ideal mixtures ;
ii). Real mixtures .

Liquid phase exists only because there are attractive forces between molecules. An ideal liquid mixture – consider mixing liquids A and B – an ideal mixture is one such that the attractive forces of A for A, B for B and A for B are similar.

Eg Bromoethane and Iodoethane.
Benzene + toluene.
n Hexane + n Heptane.

~~It~~ Can tell ideal liquid if there is no change in volume and no heat change on mixing.

ider - Pure liquid A if have excess A (sufficient for it not to evap) @ const. Temp you know that the pressure above liquid is the saturated vapour pressure.



} ~~no of~~ n in dynamic equilibrium.

assume volume of liquid is x cm³.

$$P_{N_2} + P_{O_2} = 760 \text{ mm Hg.}$$

$$PV = nRT.$$

80% N_2 — 20% O_2 by volume

$\therefore P_{N_2} = 0.8$ Atm. $P_{O_2} - 0.2$ Atm.

O_2 — 0.0489 absorbtion coeff. $\Big\}$ cm³ gas in 1cm³ liquid @ S.T.P.
N_2 — 0.0235

$O_2 \rightarrow x$ cm³ liquid contains $0.0489 \times x \times 0.2$ cm³
$N_2 \rightarrow$ " " " $0.0235 \times x \times 0.8$ cm³

$\therefore$ Total amount of gas dissolved $x(0.2 \times 0.489 + 0.8 \times 0.235)$

% N_2 = 65.8%
% O_2 = 34.2%

Liquid-liquid mixtures.

Some pairs of liquids are completely miscible in all proportions at all temps. whilst others are partly or completely immiscible.

i). Completely miscible liquids.— whatever amount of liquid A is mixed with liquid B still get homogeneous solⁿ. Two cases to be considered