Mass Exp-
Calculations:

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$$f_n = \frac{1}{T} = \frac{1}{2\pi}\sqrt{\frac{Kg}{W}}$$

$$T = \frac{1}{f_n} \quad \therefore \quad \frac{1}{T} = \frac{1}{2\pi}\sqrt{\frac{Kg}{W}}$$

$$\propto \frac{1}{\sqrt{\frac{Kg}{W}}} = \frac{T}{2\pi} \propto \frac{2\pi}{\sqrt{\frac{Kg}{W}}} = T$$

$$T^2 = \frac{4\pi^2 W}{\frac{Kg}{W}} = 4\pi^2 \frac{W}{Kg}$$

$$T = 2\pi\sqrt{\frac{W}{Kg}}$$

$$T \propto \sqrt{W}$$

Numerical Example:

$W = 100^{\#}$

$g = 32.2 \text{ '/sec}^2 \times 12''/' = 386.4 \text{ ''/sec}^2$

$K = 10 \text{ \#/''}$

$$\tau = 6.2832\sqrt{\frac{10^2}{3.864 \times 10^2 \times 10}} = \sqrt{2.588} \times \sqrt{10^{-2}}$$

$$\approx 6.28 \times 10^{-1} \times 1.7 = 1.0676$$

CKs $\bar{c}$ Nomograph

p-2.2 S&V HB

Numerical Examples:

? T_1, , T_1,

$W_1 = 150.^{\#}$

$g = 386.4''/sec^2$

$K = 20^{\#}/in$

$W_2 = 150.1^{\#}$

$$T_1 = 2 \cdot 3.1416 \sqrt{\frac{150. \times 10^{-1}}{386.4 \times 10^{2} \times 2 \times 10}}$$

$$= 6.2832 \sqrt{\frac{15.00}{7.728} \times 10^{-2}}$$

$$= 6.2832 \sqrt{1.9409937 \times 10^{-1}}$$

$$T_2 = 6.2832 \sqrt{1.9422877 \times 10^{-1}}$$

Using 5 Pl Logs

ΔW 10^{-3} $\times \Delta W^{3}$

$1.3924^2 = 1.9387777$

$\sqrt{1.94\,09\,93\,70}$

1

20 | 94
3 | 69
23

260 | 2509
9 | 2421

3780 | 8893
2 | 7564

27840 | 132970

$\tau \propto \sqrt{\frac{W}{A}}$

$\sqrt{10^{-3}} = \sqrt{10 \times 10^{-4}}$

$\tau \propto \sqrt{.1}$

$= 3 \cdot 10^{-2}$

$D = VT$

$V = 6''/sec$

$T = 5 \times 10^{-4}$

$D = 5 \cdot 5 \times 10^{-4}$

$= 2.5$

$1.3929^2 = 1.9401704$

$\sqrt{1.94\,22\,87\,70}$

20) 94
3 | 69

260 | 2522
| 2421

3780 | 10187
2 | ~~349~~
| 7564

27840 | 262370

Log 1941 = $\frac{28803}{2}$

14401

Log 1942 $\frac{28825}{2}$

14412

$D = VT$

5 $.5 \times 10^{-3}$ $5 \times .5 \times 10^{-3}$ $= 2.5 \times 10^{-3}$