Extra Questions

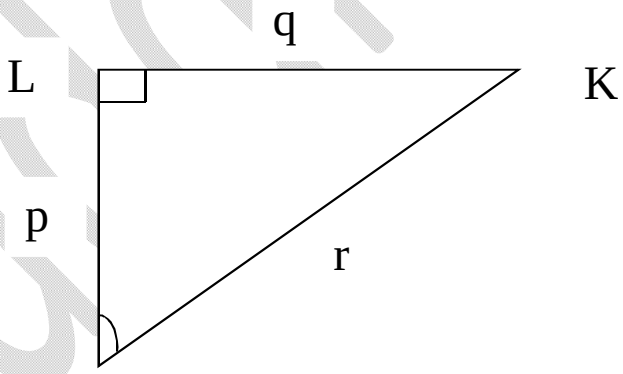
8. Trigonometry

Q. 1) write the following ratios for Δ KLM, ∠KLM = 90^0 and P, Q, R are the lengths of side are shown in figure lengths of side are shown in figure

i) sin M

ii) tan K

iii) cos M



Solution : i) $\sin M = \frac{\text{osite side of } \angle M}{\text{hypotenues}}$

$= \frac{LK}{MK}$

$= \frac{q}{r}$

ii) $\tan K = \frac{\text{opposite side of } \angle K}{\text{adjacent side of } \angle K}$

$= \frac{LM}{KL}$

$= \frac{P}{q}$

iii) $\cos M = \frac{\text{adjacent side of } \angle M}{\text{hypotenues}}$

$= \frac{ML}{MK}$

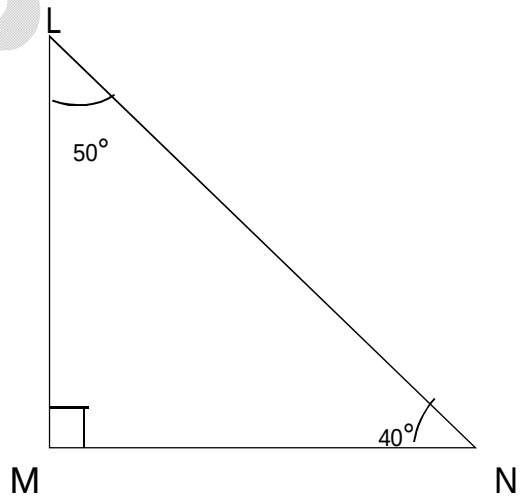
$= \frac{P}{r}$

Q. 2) write the following ratios for $\Delta LMN, \angle LMN = 90^0$ where $\angle L = 50^0$ and $\angle N = 40^0$

i) $\sin 50^0$

ii) $\cos 50^0$

iii) $\tan 40^0$



Solution : i) $\sin 50^0 = \frac{\text{opposite side}}{\text{hypotenues}} = \frac{MN}{LN}$

ii) $\cos 50^0 = \frac{\text{adjacent side}}{\text{hypotenues}} = \frac{LM}{LN}$

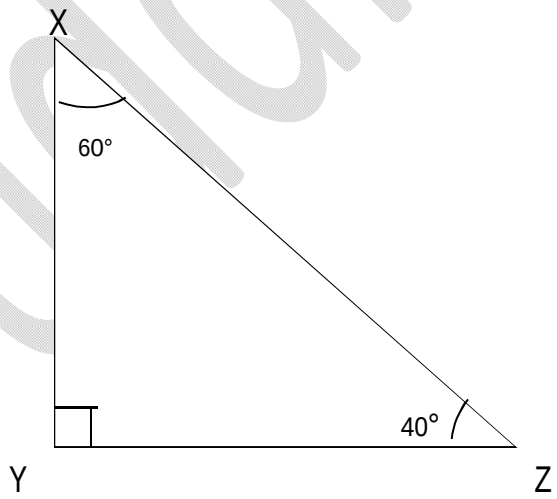
iii) $\tan 40^0 = \frac{\text{opposite side}}{\text{adjacent side}} = \frac{LM}{MN}$

Q. 3) write the following ratios for $\Delta XYZ, \angle XYZ = 90^0$ where $\angle X = 60^0$ and $\angle Z = 30^0$

i) $\sin 60^0$

ii) $\tan 40^0$

iii) $\cos 60^0$



Solution :

i) $\sin 60^0 = \frac{\text{opposite side}}{\text{hypotenues}} = \frac{YZ}{XZ}$

ii) $\tan 40^0 = \frac{\text{opposite side}}{\text{adjacent side}} = \frac{XY}{YZ}$

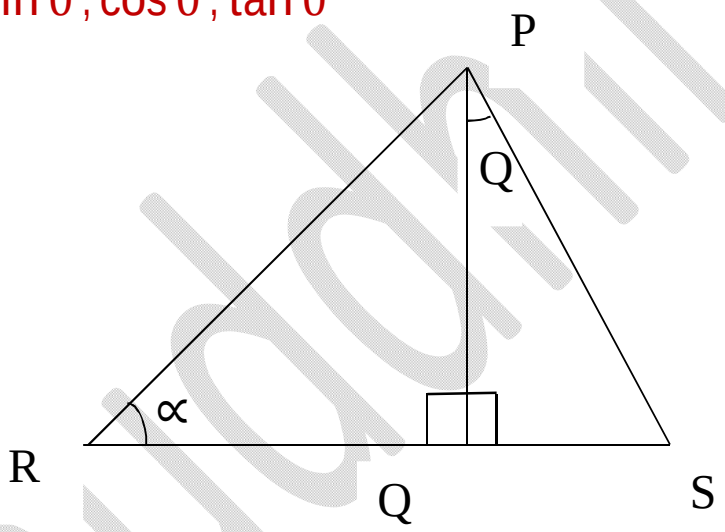
iii) $\cos 60^0 = \frac{\text{adjacent side}}{\text{hypotenues}} = \frac{XY}{ZX}$

Q.4) Write the following trigonometric ratios

$\angle PQR = 90^0, \angle PQS = 90^0, \angle PRQ = \propto$ and $\angle QPS = \theta$

A) $\sin\alpha, \cos\alpha, \tan\alpha$

B) $\sin\theta, \cos\theta, \tan\theta$



Solution :

A)

i) $\sin\alpha = \frac{\text{opposite side}}{\text{hypotenues}} = \frac{PQ}{PR}$

ii) $\cos\alpha = \frac{\text{adjacent side}}{\text{hypotenues}} = \frac{QR}{PR}$

iii) $\tan\alpha = \frac{\text{opposite side}}{\text{adjacent side}} = \frac{PQ}{QR}$

B)

iv) $\sin\theta = \frac{\text{opposite side}}{\text{hypotenues}} = \frac{QS}{PS}$

v) $\cos\theta = \frac{\text{adjacent side}}{\text{hypotenues}} = \frac{PQ}{PS}$

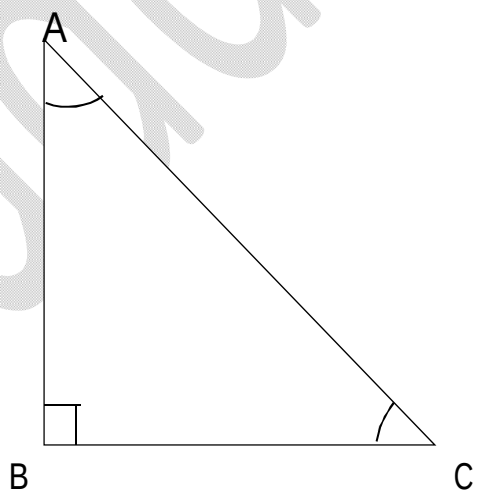
vi) $\tan\theta = \frac{\text{opposite side}}{\text{adjacent side}} = \frac{QS}{PQ}$

Q. 5) write the following trigonometric ratios for

$\Delta ABC, \angle ABC = 90^0$, where $\angle A = 30^0$ and $\angle C = 60^0$

i) $\sin 30^0$

ii) $\tan 60^0$



Solution : i) $\sin 30^0 = \frac{\text{opposite side}}{\text{hypotenues}} = \frac{BC}{AC}$

ii) $\tan 60^0 = \frac{\text{opposite side}}{\text{adjacent side}} = \frac{AB}{BC}$