Rearranging Trigonometric Equations

17 February 2026

Exercise 1

For all equations below, make r the subject of the equation:

a) $Tan\ A = \frac{d}{r}$

b) $Cos\ G = \frac{p}{r}$

c) $Sin\ U = \frac{r}{h}$

d) $Tan\ H = \frac{r}{(y+1)}$

e) $Cos\ (F + B) = \frac{(d-2)}{r}$

f) $Sin\,(G + K) = \frac{(e+h)}{r}$

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Exercise 2

a) By eliminating the variable s, using the provided equations, show that the formula for j is given by:

$$j = k\left(\frac{Tan\ C}{Tan\ D} - 1\right)$$

Equation One

$$s = \frac{k}{Tan\ D}$$

Equation Two

$$s = \frac{j + k}{Tan\ C}$$

b)

i) Make z the subject of $a = zSin(2G) + b$

ii) Make z the subject of $zCos(3H) - b = 0$

iii) Using your answers to i) and ii), show that

$$a = b\left(\frac{Sin\ 2G}{Cos\ 3H} + 1\right)$$