FORMULA SHEET

1. STRESS AND STRAIN

1.1 $Stress = \frac{Force}{Area}$ *or* $\sigma = \frac{F}{A}$

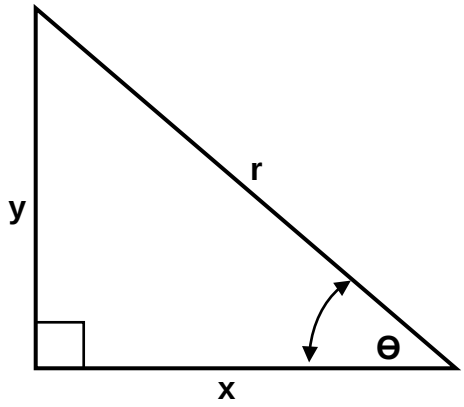
1.2 $Young's\ modulus = \frac{Stress}{Strain}$ *or* $E = \frac{\sigma}{\varepsilon}$

1.3 $Strain = \frac{Change\ in\ length}{Original\ length}$ *or* $\varepsilon = \frac{\Delta l}{ol}$

1.4 $A_{shaft} = \frac{\pi D^2}{4}$

1.5 $A_{pipe} = \frac{\pi \left(D^2 - d^2\right)}{4}$

2. PYTHAGORAS' THEOREM AND TRIGONOMETRY



2.1 $\sin\theta = \frac{y}{r}$

2.2 $\cos\theta = \frac{x}{r}$

2.3 $\tan\theta = \frac{y}{x}$

2.4 $r^2 = x^2 + y^2$ **or** $a^2 = b^2 + c^2$

3. TEMPLATES AND DEVELOPMENTS

3.1 *Mean ø = Outside ø – Plate thickness* *or*
Mean ø = Inside ø + Plate thickness

3.2 *Mean circumference* = π × *Mean ø*