psf - Pounds per Square Foot Pressure Unit

psf Derivation

The calculation below shows how the pressure unit pounds per Square Foot (psf) is derived from SI Units.

Formula

Pressure = Force / Area

Force = Mass x Acceleration

Acceleration = Distance / (Second x Second)

SI Units

Mass: Kilogram (kg)

Length: Metre (m)

Time: Second (s)

Force: Newton (N)

Pressure: Pascal (Pa)

Input Values

1 Pound = 0.45359237 kg

1 Foot = 12 ins

1 Inch = 0.0254 m

1 Square Foot = (12 x 0.0254 m) x (12 x 0.0254 m) = 0.09290304 m^2

Acceleration = Standard Gravity = 9.80665 m/s^2

Calculation

1 Pound Force = 0.45359237 kg x 9.80665 m/s² = 4.448221615 N

1 psf Pressure = 4.448221615 N / 0.09290304 m² = 47.88025898 Pa