

CONVERSION PROBLEMS

1. CONVERT 1550 SQUARE FEET (\square) AREA TO
i) cm^2 ii) m^2 iii) inch^2
2. CONVERT 1650 m^2 TO SQ INCHES
3. CONVERT 20000 psi (lbs/in^2) TO MPa
4. CONVERT 60 miles/hr to
i) km/hr ii) ft/sec iii) m/sec
5. CONVERT 1500 $\text{ft}\cdot\text{lb}$ BENDING MOMENT TO $\text{N}\cdot\text{m}$ (NEWTON METERS)
6. GIVEN 150 lbs/ft^3
CONVERT TO kg/m^3
7. CONVERT 10 m/sec TO mph (MILES/HR)
8. CONVERT $120^\circ 26' 15''$ INTO RADIANS (TRIGONOMETRY)
9. CONVERT A LOAD OF 2250 lbs INTO KN (KILO NEWTON)
10. A LOAD OF 50 KN/m TO BE CONVERTED TO lbs/ft

UNIT CONVERSIONS EXERCISES

PROB #1

GIVEN: 1550 ft^2 1) $1550 (30.5)^2 = 1441887.5 \text{ cm}^2$

ii) $\frac{1550 \text{ (m}^2\text{)}}{(3.28)^2} = 144.073 \text{ m}^2$ 2) $1550 (12)^2 = 223200 \text{ in}^2$

PROB #2) GIVEN: $1650 \text{ m}^2 \rightarrow 1650 (39.37)^2 = 2557494.885$

PROB #3

GIVEN: 20000 psi $1 \text{ psi} = 6.9 \times 10^3 \text{ N/m}^2$ OR 6.9 kPa

$20000 \times 6.9 \times 10^3 \text{ (Pa)} \times \frac{1}{100} = 138 \text{ MPa}$

PROB #4

CONVERT 60 mph

i) $60 \times 1.609 = 96.54 \text{ km/h}$ ii) $\frac{60 \times 5280}{3600} = 88 \text{ ft/sec}$

iii) $\frac{60 \times 1.609 \times 10^3}{(60)^2} = 26.82 \text{ m/sec}$

PROB #5

GIVEN 1500 ft. lbs $1 \text{ lb} = 4.45 \text{ N}$

$1500 \times 4.45 = 6675 \text{ N.ft} \rightarrow \frac{6675}{3.28} = 2035.06 \text{ N.m}$

PROB #6

GIVEN: CONC. $\frac{150 \text{ lbs}}{\text{ft}^3} \rightarrow \frac{150 \text{ kg}}{2.2 \text{ ft}^3} (3.28)^3 = 2405.97 \text{ kg/m}^3$

PROB #7

GIVEN $10 \text{ m/sec} \rightarrow \text{mph} \frac{10 \times 3.28}{5280} \times \frac{3600}{60} = 22.36 \text{ mph}$

PROB #8

CONVERT $120^\circ 20' 15''$ INTO RADIANS $\frac{\pi}{180} (120.3375) = 2.1 \text{ rad}$

PROB #9

GIVEN: $2250 \text{ lbs} \rightarrow \text{kN} \frac{2250 \times 4.45}{103} = 10.01 \text{ kN}$

PROB #10

GIVEN: $50 \text{ kN/m} \rightarrow \text{lbs/ft} \frac{50 \times 10^3 \times 1}{4.45 (3.28)} = 3425.6 \text{ lbs/ft}$