TX PACT: SCIENCE: GRADES 7–12 CONSTANTS AND FORMULAS

Avogadro's number	6.02×10^{23}
Acceleration of gravity on Earth (g)	$9.8\ \text{m/s}^2$
Universal law of gravitation	$F = \frac{Gm_1m_2}{r^2}$
Gravitational constant (G)	$6.67 \times 10^{-11}\ \text{N•m}^2/\text{kg}^2$
Potential energy	$PE = mgh$
Kinetic energy	$KE = \frac{1}{2}mv^2$
Ohm's law	$V = IR$
Electrical power	$P = IV$
Series resistance	$R_{Series} = R_1 + R_2 + R_3 + \ldots$
Parallel resistance	$\frac{1}{R_{Parallel}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} +$
Magnetic field of a solenoid	$B = \frac{\mu NI}{L}$
Ideal gas law	$PV = nRT$
Combined gas law	$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$
Universal gas constant	$R = 8.31\ \text{J/mol•K} = 0.0821\ \text{L•atm/mol•K}$
Frequency of a wave	$f = 1/T$
Velocity of a wave	$v = f\lambda$
Specific heat (s) of water (liquid)	$4.18\ \text{J/g•K} = 4.18\ \text{J/g•°C} = 1.0\ \text{cal/g•°C}$
Standard atmospheric pressure (STP)	1 atm = 760 mm Hg = 760 torr = 101.325 kPa
Speed of light in a vacuum (c)	$3.00 \times 10^8\ \text{m/s}$
1 calorie (cal)	4.184 J
1 watt (W)	1 J/s
1 ampere (A)	1 C/s
Kelvin/Celsius conversion	$T_K = T_C + 273$