N16 – Waves and Math

$c = \nu \lambda$	$E = h \nu$
$E = \frac{hc}{\lambda}$	$\lambda = \frac{hc}{E}$

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	de Broglie Equation	Bohr Equation (72)
	$\lambda = \frac{h}{}$	$E = -2.178 \times 10^{-18} J\left(\frac{Z^2}{n^2}\right)$
	mv	Z = nuclear charge
	m = particle mass	n = energy level

$$\frac{\frac{\text{Energy Change}}{\text{Between Two}}}{\frac{\text{Energy Levels}}{\text{Energy Levels}}} \quad E = -2.178 \ \text{x} \ 10^{-18} J \left(\frac{Z^2}{n_{final}^2} - \frac{Z^2}{n_{initial}^2} \right)$$

N16 - Waves and Math

de Broglie Equation	Bohr Equation (72)
$\lambda = \frac{h}{}$	$E = -2.178 \times 10^{-18} J\left(\frac{z^{-1}}{r^{2}}\right)$
mv	Z = nuclear charge
m = particle mass	n = energy level

$$\frac{\frac{\text{Energy Change}}{\text{Between Two}}}{\frac{\text{Energy Levels}}{\text{Energy Levels}}} \ E = -2.178 \ x \ 10^{-18} J \left(\frac{Z^2}{n_{final}^2} - \frac{Z^2}{n_{initial}^2} \right)$$

N16 - Waves and Math

$c = v\lambda$	E = h v
$E = \frac{hc}{\lambda}$	$\lambda = \frac{hc}{E}$

de Broglie Equation	Bohr Equation (72)
$\lambda = \frac{h}{}$	$E = -2.178 \times 10^{-18} J\left(\frac{Z^{-1}}{R^{2}}\right)$
mv	Z = nuclear charge
m = particle mass	n = energy level

$$\frac{\text{Energy Change}}{\text{Between Two}} \quad E = -2.178 \ x \ 10^{-18} J \left(\frac{Z^2}{n_{final}^2} - \frac{Z^2}{n_{initial}^2} \right)$$

N16 - Waves and Math

$$\begin{array}{c|c}
c = v\lambda & E = hv \\
\hline
E = \frac{hc}{\lambda} & \lambda = \frac{hc}{E}
\end{array}$$

de Broglie Equation	Bohr Equation (72)
$\lambda = \frac{h}{}$	$E = -2.178 \times 10^{-18} J\left(\frac{Z^2}{n^2}\right)$
mv	Z = nuclear charge
m = particle mass	n = energy level

Energy Change
Between Two
Energy Levels
$$E = -2.178 \times 10^{-18} J \left(\frac{Z^2}{n_{final}^2} - \frac{Z^2}{n_{initial}^2} \right)$$

N16 - Waves and Math

$c = v\lambda$	$E = h \nu$
$E = \frac{hc}{\lambda}$	$\lambda = \frac{hc}{E}$

de Broglie Equation	Bohr Equation
	$\overline{Z^2}$
n	$E = -2.178 \times 10^{-18} J\left(\frac{z}{r^2}\right)$
$\lambda = -$	$L = 2.170 \times 10^{-3}$
mv	Z = nuclear charge
	ē
m = particle mass	n = energy level

$$\frac{\text{Energy Change}}{\text{Between Two}} \quad E = -2.178 \ x \ 10^{-18} J \left(\frac{Z^2}{n_{final}^2} - \frac{Z^2}{n_{initial}^2} \right)$$

N16 – Waves and Math

$c = \nu \lambda$	E = h v
$E = \frac{hc}{\lambda}$	$\lambda = \frac{hc}{E}$

de Broglie Equation	Bohr Equation (7 ²)
$\lambda = \frac{h}{}$	$E = -2.178 \times 10^{-18} J\left(\frac{2}{n^2}\right)$
mv	Z = nuclear charge
m = particle mass	n = energy level

$$\frac{\frac{\text{Energy Change}}{\text{Between Two}}}{\frac{\text{Energy Levels}}{\text{Energy Levels}}} E = -2.178 \times 10^{-18} J \left(\frac{Z^2}{n_{final}^2} - \frac{Z^2}{n_{initial}^2} \right)$$

N16 – Waves and Math

$c = v\lambda$	$E = h \nu$
$E = \frac{hc}{\lambda}$	$\lambda = \frac{hc}{E}$

de Broglie Equation h	$\frac{\text{Bohr Equation}}{E = -2.178 \text{ x } 10^{-18} J \left(\frac{Z^2}{H^2}\right)}$
$\lambda = \frac{1}{mv}$	Z = nuclear charge
m = particle mass	n = energy level

$$\frac{\frac{\text{Energy Change}}{\text{Between Two}}}{\frac{\text{Energy Levels}}{\text{Energy Levels}}} E = -2.178 \times 10^{-18} J \left(\frac{Z^2}{n_{final}^2} - \frac{Z^2}{n_{initial}^2} \right)$$

N16 – Waves and Math

$c = v\lambda$	$E = h \nu$
$E = \frac{hc}{\lambda}$	$\lambda = \frac{hc}{E}$

de Broglie Equation h	$E = -2.178 \times 10^{-18} J \left(\frac{Z^2}{r^2}\right)$
$\lambda = \frac{n}{mv}$	$Z = \text{nuclear charge} \left(\frac{1}{n^2} \right)$
m = particle mass	n = energy level