fóton

$$E = mc^2$$

$$Q_f = \frac{E}{c}$$

$$E_f = hf$$

de Broglie

$$\lambda = \frac{h}{Q}$$

efeito fotoelétrico

$$hf = \phi + E_e$$

elétron

$$\phi = hf_0$$

$$Q_e = m_e v_e$$

$$E_e = \frac{m_e v_e^2}{2}$$

E – energia de radiação.
m – massa transformada em radiação.
c – velocidade da luz.
E_f – energia do fóton.
h – constante de Planck.
f – frequência.
λ – comprimento de onda.
Q_f – quantidade de movimento do fóton.
Q_f – quantidade de movimento do elétro
ϕ – função trabalho.
E_e – energia cinética do elétron.
f_0 – frequência mínima.
m_e – massa do elétron.
m_e – velocidade do elétron.

$$v_e = \sqrt{\frac{2E_e}{m_e}}$$

Complete a tabela abaixo utilizando as equações acima.

x(1,60218E-19)

	1	2	3	4	5	6	7	8	9	10	11
	h (eV s)	h (J s)	m_e (kg)	f (Hz)	E=hf (eV)	ϕ (eV)	E_e (eV)	E_e (J)	v_e $(^m/_s)$	Q_e $(\mathrm{kg}.\,^m/_s)$	λ_e (m)
a	4,13567E-15	6,62607E-34	9,10938E-31	6,00000E+18	2,48140E+04	2,50000E+00	2,48115E+04	3,97525E-15	9,34228E+07	8,51024E-23	7,78600E-12
b	4,13567E-15	6,62607E-34	9,10938E-31	7,00000E+17	2,89497E+03	2,30000E+00	2,89267E+03	4,63457E-16	3,18989E+07	2,90579E-23	2,28030E-11
c	4,13567E-15	6,62607E-34	9,10938E-31	7,50000E+16	3,10175E+02	2,30000E+00	3,07875E+02	4,93271E-17	1,04067E+07	9,47987E-24	6,98962E-11
d	4,13567E-15	6,62607E-34	9,10938E-31	8,00000E+15	3,30853E+01	2,30000E+00	3,07853E+01	4,93236E-18	3,29077E+06	2,99769E-24	2,21039E-10
e	4,13567E-15	6,62607E-34	9,10938E-31	9,00000E+14	3,72210E+00	2,30000E+00	1,42210E+00	2,27846E-19	7,07280E+05	6,44288E-25	1,02843E-09
f	4,13567E-15	6,62607E-34	9,10938E-31	8,00000E+14	3,30853E+00	2,30000E+00	1,00853E+00	1,61585E-19	5,95623E+05	5,42576E-25	1,22122E-09
g	4,13567E-15	6,62607E-34	9,10938E-31	7,00000E+14	2,89497E+00	2,30000E+00	5,94967E-01	9,53244E-20	4,57480E+05	4,16737E-25	1,58999E-09
h	4,13567E-15	6,62607E-34	9,10938E-31	6,00000E+14	2,48140E+00	2,30000E+00	1,81400E-01	2,90636E-20	2,52607E+05	2,30109E-25	2,87953E-09
i	4,13567E-15	6,62607E-34	9,10938E-31	5,90000E+14	2,44004E+00	2,30000E+00	1,40044E-01	2,24375E-20	2,21951E+05	2,02184E-25	3,27725E-09
j	4,13567E-15	6,62607E-34	9,10938E-31	5,80000E+14	2,39869E+00	2,20000E+00	1,98687E-01	3,18332E-20	2,64369E+05	2,40824E-25	2,75142E-09
k	4,13567E-15	6,62607E-34	9,10938E-31	5,70000E+14	2,35733E+00	2,20000E+00	1,57330E-01	2,52071E-20	2,35251E+05	2,14300E-25	3,09197E-09
l	4,13567E-15	6,62607E-34	9,10938E-31	5,60000E+14	2,31597E+00	2,20000E+00	1,15974E-01	1,85810E-20	2,01979E+05	1,83990E-25	3,60132E-09
m	4,13567E-15	6,62607E-34	9,10938E-31	5,50000E+14	2,27462E+00	2,20000E+00	7,46169E-02	1,19550E-20	1,62011E+05	1,47582E-25	4,48975E-09
n	4,13567E-15	6,62607E-34	9,10938E-31	5,40000E+14	2,23326E+00	2,20000E+00	3,32602E-02	5,32888E-21	1,08165E+05	9,85320E-26	6,72479E-09

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n.