BOLETÍN 01 - FACTORES DE CONVERSIÓN 01

FÍSICA Y QUÍMICA 4.º ESO

Enunciados

1) 345 mm a m
2) 2,7 km a m
3) 0,085 mg a kg
4) $7{,}5 \times 10^{6}$ ns a s
5) 1,2 GPa a kPa
6) 58 cm a m
7) 4,2 μm a m
8) 9,0 nm a m
9) $6{,}3 \times 10^{3}$ g a kg
10) 7,4 kg a mg
11) 250 mL a L
12) 3,3 ML a L
13) 0,47 ms a s
14) 8,9 μs a s
15) 6,2 ns a s
16) 5,0 hPa a Pa
17) 7,0 MPa a Pa
18) 3,6 mJ a J
19) 4,5 kJ a J
20) 2,4 GW a W
21) 18 nm a μm
22) 7,2 mg a μg
23) 0,35 kg a g
24) 930 g a kg
25) 12 cm a mm
26) 0,015 m a mm
27) 4,0 TB a GB
28) 6,5 GB a MB
29) 3,2 MHz a kHz
30) 7,5 kHz a Hz
31) 0,25 mW a W
32) $9{,}0 \times 10^{2}$ μW a W
33) $1{,}8 \times 10^{3}$ mm a km
34) 4,0 pm a m
35) $2{,}2 \times 10^{4}$ μm a m
36) $5{,}5 \times 10^{2}$ mg a g
37) 7,0 cg a g
38) $3{,}0 \times 10^{1}$ dg a g
39) 8,0 hm a m
40) 9,0 dm a m

Soluciones

1) $345\,\text{mm} = 3{,}45 \times 10^{2}\,\text{mm} = 3{,}45 \times 10^{2}\,\cancel{\text{mm}} \cdot \dfrac{10^{-3}\,\text{m}}{1\,\cancel{\text{mm}}} = 3{,}45 \times 10^{2} \times 10^{-3}\,\text{m} = \boxed{3{,}45 \times 10^{-1}\,\text{m}}$

2) $2{,}7\,\text{km} = 2{,}7\,\cancel{\text{km}} \cdot \dfrac{10^{3}\,\text{m}}{1\,\cancel{\text{km}}} = \boxed{2{,}7 \times 10^{3}\,\text{m}}$

3) $0{,}085\,\text{mg} = 8{,}5 \times 10^{-2}\,\text{mg} = 8{,}5 \times 10^{-2}\,\cancel{\text{mg}} \cdot \dfrac{10^{-3}\,\cancel{g}}{1\,\cancel{\text{mg}}} \cdot \dfrac{1\,\text{kg}}{10^{3}\,\cancel{g}} = 8{,}5 \times 10^{-2} \times 10^{-3} \times 10^{-3}\,\text{kg} = \boxed{8{,}5 \times 10^{-8}\,\text{kg}}$

4) $7{,}5 \times 10^{6}\,\text{ns} = 7{,}5 \times 10^{6}\,\cancel{\text{ns}} \cdot \dfrac{10^{-9}\,\text{s}}{1\,\cancel{\text{ns}}} = 7{,}5 \times 10^{6} \times 10^{-9}\,\text{s} = \boxed{7{,}5 \times 10^{-3}\,\text{s}}$

5) $1{,}2\,\text{GPa} = 1{,}2\,\cancel{\text{GPa}} \cdot \dfrac{10^{9}\,\cancel{\text{Pa}}}{1\,\cancel{\text{GPa}}} \cdot \dfrac{1\,\text{kPa}}{10^{3}\,\cancel{\text{Pa}}} = 1{,}2 \times 10^{9} \times 10^{-3}\,\text{kPa} = \boxed{1{,}2 \times 10^{6}\,\text{kPa}}$

6) $58\,\text{cm} = 5{,}8 \times 10^{1}\,\text{cm} = 5{,}8 \times 10^{1}\,\cancel{\text{cm}} \cdot \dfrac{10^{-2}\,\text{m}}{1\,\cancel{\text{cm}}} = 5{,}8 \times 10^{1} \times 10^{-2}\,\text{m} = \boxed{5{,}8 \times 10^{-1}\,\text{m}}$

7) $4{,}2\,\mu\text{m} = 4{,}2\,\cancel{\mu\text{m}} \cdot \dfrac{10^{-6}\,\text{m}}{1\,\cancel{\mu\text{m}}} = \boxed{4{,}2 \times 10^{-6}\,\text{m}}$

8) $9{,}0\,\text{nm} = 9{,}0\,\cancel{\text{nm}} \cdot \dfrac{10^{-9}\,\text{m}}{1\,\cancel{\text{nm}}} = \boxed{9{,}0 \times 10^{-9}\,\text{m}}$

9) $6{,}3 \times 10^{3}\,\text{g} = 6{,}3 \times 10^{3}\,\cancel{g} \cdot \dfrac{1\,\text{kg}}{10^{3}\,\cancel{g}} = 6{,}3 \times 10^{3} \times 10^{-3}\,\text{kg} = \boxed{6{,}3 \times 10^{0}\,\text{kg}}$

10) $7{,}4\,\text{kg} = 7{,}4\,\cancel{\text{kg}} \cdot \dfrac{10^{3}\,\cancel{g}}{1\,\cancel{\text{kg}}} \cdot \dfrac{1\,\text{mg}}{10^{-3}\,\cancel{g}} = 7{,}4 \times 10^{3} \times 10^{3}\,\text{mg} = \boxed{7{,}4 \times 10^{6}\,\text{mg}}$

11) $250\,\text{mL} = 2{,}5 \times 10^{2}\,\text{mL} = 2{,}5 \times 10^{2}\,\cancel{\text{mL}} \cdot \dfrac{10^{-3}\,\text{L}}{1\,\cancel{\text{mL}}} = 2{,}5 \times 10^{2} \times 10^{-3}\,\text{L} = \boxed{2{,}5 \times 10^{-1}\,\text{L}}$

12) $3{,}3\,\text{ML} = 3{,}3\,\cancel{\text{ML}} \cdot \dfrac{10^{6}\,\text{L}}{1\,\cancel{\text{ML}}} = \boxed{3{,}3 \times 10^{6}\,\text{L}}$

13) $0{,}47\,\text{ms} = 4{,}7 \times 10^{-1}\,\text{ms} = 4{,}7 \times 10^{-1}\,\cancel{\text{ms}} \cdot \dfrac{10^{-3}\,\text{s}}{1\,\cancel{\text{ms}}} = 4{,}7 \times 10^{-1} \times 10^{-3}\,\text{s} = \boxed{4{,}7 \times 10^{-4}\,\text{s}}$

14) $8{,}9\,\mu\text{s} = 8{,}9\,\cancel{\mu\text{s}} \cdot \dfrac{10^{-6}\,\text{s}}{1\,\cancel{\mu\text{s}}} = \boxed{8{,}9 \times 10^{-6}\,\text{s}}$

15) $6{,}2\,\text{ns} = 6{,}2\,\cancel{\text{ns}} \cdot \dfrac{10^{-9}\,\text{s}}{1\,\cancel{\text{ns}}} = \boxed{6{,}2 \times 10^{-9}\,\text{s}}$

16) $5{,}0\,\text{hPa} = 5{,}0\,\cancel{\text{hPa}} \cdot \dfrac{10^{2}\,\text{Pa}}{1\,\cancel{\text{hPa}}} = \boxed{5{,}0 \times 10^{2}\,\text{Pa}}$

17) $7{,}0\,\text{MPa} = 7{,}0\,\cancel{\text{MPa}} \cdot \dfrac{10^{6}\,\text{Pa}}{1\,\cancel{\text{MPa}}} = \boxed{7{,}0 \times 10^{6}\,\text{Pa}}$

18) $3{,}6\,\text{mJ} = 3{,}6\,\cancel{\text{mJ}} \cdot \dfrac{10^{-3}\,\text{J}}{1\,\cancel{\text{mJ}}} = \boxed{3{,}6 \times 10^{-3}\,\text{J}}$

19) $4{,}5\,\text{kJ} = 4{,}5\,\cancel{\text{kJ}} \cdot \dfrac{10^{3}\,\text{J}}{1\,\cancel{\text{kJ}}} = \boxed{4{,}5 \times 10^{3}\,\text{J}}$

20) $2{,}4\,\text{GW} = 2{,}4\,\cancel{\text{GW}} \cdot \dfrac{10^{9}\,\text{W}}{1\,\cancel{\text{GW}}} = \boxed{2{,}4 \times 10^{9}\,\text{W}}$

21) $18\,\text{nm} = 1{,}8 \times 10^{1}\,\text{nm} = 1{,}8 \times 10^{1}\,\cancel{\text{nm}} \cdot \dfrac{10^{-9}\,\cancel{\text{m}}}{1\,\cancel{\text{nm}}} \cdot \dfrac{1\,\mu\text{m}}{10^{-6}\,\cancel{\text{m}}} = 1{,}8 \times 10^{1} \times 10^{-9} \times 10^{6}\,\mu\text{m} = \boxed{1{,}8 \times 10^{-2}\,\mu\text{m}}$

22) $7{,}2\,\text{mg} = 7{,}2\,\cancel{\text{mg}} \cdot \dfrac{10^{-3}\,\cancel{g}}{1\,\cancel{\text{mg}}} \cdot \dfrac{1\,\mu\text{g}}{10^{-6}\,\cancel{g}} = 7{,}2 \times 10^{-3} \times 10^{6}\,\mu\text{g} = \boxed{7{,}2 \times 10^{3}\,\mu\text{g}}$

23) $0{,}35\,\text{kg} = 3{,}5 \times 10^{-1}\,\text{kg} = 3{,}5 \times 10^{-1}\,\cancel{\text{kg}} \cdot \dfrac{10^{3}\,\text{g}}{1\,\cancel{\text{kg}}} = 3{,}5 \times 10^{-1} \times 10^{3}\,\text{g} = \boxed{3{,}5 \times 10^{2}\,\text{g}}$

24) $930\,\text{g} = 9{,}3 \times 10^{2}\,\text{g} = 9{,}3 \times 10^{2}\,\cancel{g} \cdot \dfrac{1\,\text{kg}}{10^{3}\,\cancel{g}} = 9{,}3 \times 10^{2} \times 10^{-3}\,\text{kg} = \boxed{9{,}3 \times 10^{-1}\,\text{kg}}$

25) $12\,\text{cm} = 1{,}2 \times 10^{1}\,\text{cm} = 1{,}2 \times 10^{1}\,\cancel{\text{cm}} \cdot \dfrac{10^{-2}\,\cancel{\text{m}}}{1\,\cancel{\text{cm}}} \cdot \dfrac{1\,\text{mm}}{10^{-3}\,\cancel{\text{m}}} = 1{,}2 \times 10^{1} \times 10^{-2} \times 10^{3}\,\text{mm} = \boxed{1{,}2 \times 10^{2}\,\text{mm}}$

26) $0{,}015\,\text{m} = 1{,}5 \times 10^{-2}\,\text{m} = 1{,}5 \times 10^{-2}\,\cancel{\text{m}} \cdot \dfrac{1\,\text{mm}}{10^{-3}\,\cancel{\text{m}}} = 1{,}5 \times 10^{-2} \times 10^{3}\,\text{mm} = \boxed{1{,}5 \times 10^{1}\,\text{mm}}$

27) $4{,}0\,\text{TB} = 4{,}0\,\cancel{\text{TB}} \cdot \dfrac{10^{12}\,\cancel{B}}{1\,\cancel{\text{TB}}} \cdot \dfrac{1\,\text{GB}}{10^{9}\,\cancel{B}} = 4{,}0 \times 10^{12} \times 10^{-9}\,\text{GB} = \boxed{4{,}0 \times 10^{3}\,\text{GB}}$

28) $6{,}5\,\text{GB} = 6{,}5\,\cancel{\text{GB}} \cdot \dfrac{10^{9}\,\cancel{B}}{1\,\cancel{\text{GB}}} \cdot \dfrac{1\,\text{MB}}{10^{6}\,\cancel{B}} = 6{,}5 \times 10^{9} \times 10^{-6}\,\text{MB} = \boxed{6{,}5 \times 10^{3}\,\text{MB}}$

29) $3{,}2\,\text{MHz} = 3{,}2\,\cancel{\text{MHz}} \cdot \dfrac{10^{6}\,\cancel{\text{Hz}}}{1\,\cancel{\text{MHz}}} \cdot \dfrac{1\,\text{kHz}}{10^{3}\,\cancel{\text{Hz}}} = 3{,}2 \times 10^{6} \times 10^{-3}\,\text{kHz} = \boxed{3{,}2 \times 10^{3}\,\text{kHz}}$

30) $7{,}5\,\text{kHz} = 7{,}5\,\cancel{\text{kHz}} \cdot \dfrac{10^{3}\,\text{Hz}}{1\,\cancel{\text{kHz}}} = \boxed{7{,}5 \times 10^{3}\,\text{Hz}}$

31) $0{,}25\,\text{mW} = 2{,}5 \times 10^{-1}\,\text{mW} = 2{,}5 \times 10^{-1}\,\cancel{\text{mW}} \cdot \dfrac{10^{-3}\,\text{W}}{1\,\cancel{\text{mW}}} = 2{,}5 \times 10^{-1} \times 10^{-3}\,\text{W} = \boxed{2{,}5 \times 10^{-4}\,\text{W}}$

32) $9{,}0 \times 10^{2}\,\mu\text{W} = 9{,}0 \times 10^{2}\,\cancel{\mu\text{W}} \cdot \dfrac{10^{-6}\,\text{W}}{1\,\cancel{\mu\text{W}}} = 9{,}0 \times 10^{2} \times 10^{-6}\,\text{W} = \boxed{9{,}0 \times 10^{-4}\,\text{W}}$

33) $1{,}8 \times 10^{3}\,\text{mm} = 1{,}8 \times 10^{3}\,\cancel{\text{mm}} \cdot \dfrac{10^{-3}\,\cancel{\text{m}}}{1\,\cancel{\text{mm}}} \cdot \dfrac{1\,\text{km}}{10^{3}\,\cancel{\text{m}}} = 1{,}8 \times 10^{3} \times 10^{-3} \times 10^{-3}\,\text{km} = \boxed{1{,}8 \times 10^{-3}\,\text{km}}$

34) $4{,}0\,\text{pm} = 4{,}0\,\cancel{\text{pm}} \cdot \dfrac{10^{-12}\,\text{m}}{1\,\cancel{\text{pm}}} = \boxed{4{,}0 \times 10^{-12}\,\text{m}}$

35) $2{,}2 \times 10^{4}\,\mu\text{m} = 2{,}2 \times 10^{4}\,\cancel{\mu\text{m}} \cdot \dfrac{10^{-6}\,\text{m}}{1\,\cancel{\mu\text{m}}} = 2{,}2 \times 10^{4} \times 10^{-6}\,\text{m} = \boxed{2{,}2 \times 10^{-2}\,\text{m}}$

36) $5{,}5 \times 10^{2}\,\text{mg} = 5{,}5 \times 10^{2}\,\cancel{\text{mg}} \cdot \dfrac{10^{-3}\,\text{g}}{1\,\cancel{\text{mg}}} = 5{,}5 \times 10^{2} \times 10^{-3}\,\text{g} = \boxed{5{,}5 \times 10^{-1}\,\text{g}}$

37) $7{,}0\,\text{cg} = 7{,}0\,\cancel{\text{cg}} \cdot \dfrac{10^{-2}\,\text{g}}{1\,\cancel{\text{cg}}} = \boxed{7{,}0 \times 10^{-2}\,\text{g}}$

38) $3{,}0 \times 10^{1}\,\text{dg} = 3{,}0 \times 10^{1}\,\cancel{\text{dg}} \cdot \dfrac{10^{-1}\,\text{g}}{1\,\cancel{\text{dg}}} = 3{,}0 \times 10^{1} \times 10^{-1}\,\text{g} = \boxed{3{,}0 \times 10^{0}\,\text{g}}$

39) $8{,}0\,\text{hm} = 8{,}0\,\cancel{\text{hm}} \cdot \dfrac{10^{2}\,\text{m}}{1\,\cancel{\text{hm}}} = \boxed{8{,}0 \times 10^{2}\,\text{m}}$

40) $9{,}0\,\text{dm} = 9{,}0\,\cancel{\text{dm}} \cdot \dfrac{10^{-1}\,\text{m}}{1\,\cancel{\text{dm}}} = \boxed{9{,}0 \times 10^{-1}\,\text{m}}$