P #A

Ch 29 - Worksheet

a) Z = # of protons = 27
m = 59.93 u

From Appendix B: $^{60}_{27}Co$

b) # of neutrons = $A - Z$

$= 60 - 27$

# of neutrons = 33

c) $m = 59.93\ u \cdot \frac{1.66 \times 10^{-27}\ kg}{1\ u} = 9.948 \times 10^{-26}\ kg$ (per atom)

By dimensional analysis:

$$\frac{2.34 \times 10^{-4}\ kg}{9.948 \times 10^{-26}\ kg \text{ per atom}} = 2.35 \times 10^{21}\ \text{atoms}$$