How many kilograms of phosphorous are in a sample containing 9.25E+30 phosphorous atoms?

Solution:

1. $n = \dfrac{N}{Na}$;

$n(P) = \dfrac{N(P)}{Na}$;

$n(P) = \dfrac{9.25E+30}{6.02 \times 10^{23}} = 9.16E + 23$;

2. m=M×n;

m(P)=M(P)×n(P);

m(P)=31×9.16E+23=2.83E+25 gram=2.83E+28 kg.

Answer: m(P)= 2.83E+28 kg.