Question #63793, Chemistry / General Chemistry

How many miles of Fe_2O_3(s) is produced when 5.0 miles of Fe(s) reacts,

Solution*:*
Chemical reaction:
4Fe (s) + $3O_2$ (g) = $2Fe_2O_3$ (s)
According to balanced above equation:

$$\frac{1}{4} \times n(Fe) = \frac{1}{2} \times n(Fe_2O_3)$$

n-moles. Thus:

$$n(Fe_2O_3) = \frac{2}{4} n(Fe) = \frac{1}{2} \times n(Fe) = \frac{1}{2} \times 5.0\ moles = \mathbf{2.5\ moles}$$