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Per: _____ Date: _____



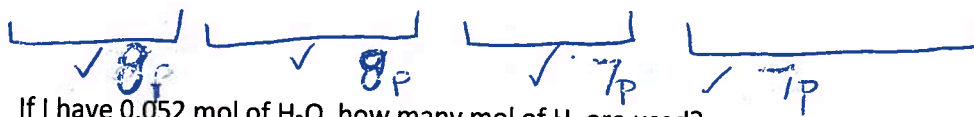
Quiz 4A: The Concept of the Mole

KEY

For the following questions, use the following equation: $2 \text{H}_2 + 1 \text{O}_2 \rightarrow 2 \text{H}_2\text{O}$] ✓ 7pt.

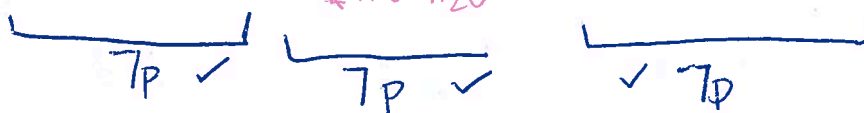
1. If I have 1 liter of water, how many moles of O_2 do I have?

$$\frac{1 \text{ liter H}_2\text{O}}{1} \times \frac{1 \text{ mole H}_2\text{O}}{22.4 \text{ L H}_2\text{O}} \times \frac{1 \text{ O}_2}{2 \text{ H}_2\text{O}} = 0.022 \text{ moles O}_2$$



2. If I have 0.052 mol of H_2O , how many mol of H_2 are used?

$$\frac{0.052 \text{ mol H}_2\text{O}}{1} \times \frac{2 \text{ H}_2}{2 \text{ mol H}_2\text{O}} = 0.052 \text{ mol H}_2$$



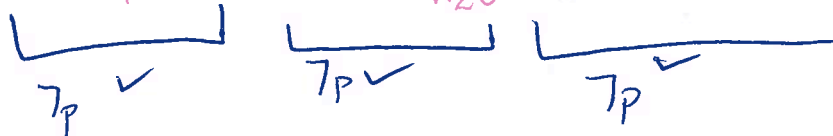
3. How many moles of O_2 are needed to make 5.0 moles of H_2O ?

$$\frac{5.0 \text{ mol H}_2\text{O}}{1} \times \frac{1 \text{ O}_2}{2 \text{ mol H}_2\text{O}} = 2.50 \text{ mol O}_2$$



4. How many moles of H_2 are reacted with O_2 to form 10.0 moles of H_2O ?

$$\frac{10 \text{ mol H}_2\text{O}}{1} \times \frac{2 \text{ H}_2}{2 \text{ mol H}_2\text{O}} = 10 \text{ mole H}_2$$



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B

KEY

Quiz 4B: The Concept of the Mole

For the following questions, use the following equation: $2 \text{H}_2 + 1 \text{O}_2 \rightarrow 2 \text{H}_2\text{O}$] 7pts

1. If I have 10 liters of water, how many moles of O_2 do I have?

$$\frac{10 \text{ liters H}_2\text{O}}{1} \times \frac{1 \text{ mole H}_2\text{O}}{22.4 \text{ L H}_2\text{O}} \times \frac{1 \text{ O}_2}{2 \text{ H}_2\text{O}} = 0.22 \text{ mole O}_2$$

8pts. 8pts 7pts 7pts.

2. If I have 0.250 mol of H_2O , how many mol of H_2 are used?

$$\frac{0.250 \text{ mol H}_2\text{O}}{1} \times \frac{2 \text{ H}_2}{2 \text{ H}_2\text{O}} = 0.250 \text{ mol H}_2$$

7pts. 7pts. 7pts.

3. How many moles of O_2 are needed to make 15.0 moles of H_2O ?

$$\frac{15.0 \text{ mole H}_2\text{O}}{1} \times \frac{1 \text{ O}_2}{2 \text{ H}_2\text{O}} = \frac{15.0}{2} = 7.5 \text{ mole O}_2$$

7pts 7pts. 7pts.

4. How many moles of H_2 are reacted with O_2 to form 12.0 moles of H_2O ?

$$\frac{12 \text{ moles H}_2\text{O}}{1} \times \frac{2 \text{ H}_2}{2 \text{ H}_2\text{O}} = 12 \text{ moles H}_2$$

7pts. 7pts. 7pts.

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Per: _____ Date: _____



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Quiz 4C: The Concept of the Mole

For the following questions, use the following equation: $\underline{1} \text{ N}_2 + \underline{3} \text{ H}_2 \rightarrow \underline{2} \text{ NH}_3$] ✓ 7 pt

1. If I have 1 liter of ammonia, how many moles of N_2 do I have?

$$\frac{1 \text{ liter NH}_3}{1} \times \frac{1 \text{ mole NH}_3}{22.4 \text{ L NH}_3} \times \frac{1 \text{ N}_2}{2 \text{ NH}_3} = \boxed{0.022 \text{ mol N}_2}$$

8 pt. 8 pt. 7 pt. 7 pt.

2. If I have 0.052 mol of NH_3 , how many mol of H_2 are used?

$$\frac{0.052 \text{ NH}_3}{1} \times \frac{3 \text{ H}_2}{2 \text{ NH}_3} = \boxed{0.078 \text{ mole H}_2}$$

7 pt. 7 pt. 7 pt.

3. How many moles of N_2 are needed to make 5.0 moles of NH_3 ?

$$\frac{5.0 \text{ mole NH}_3}{1} \times \frac{1 \text{ N}_2}{2 \text{ NH}_3} = \boxed{2.5 \text{ mol N}_2}$$

7 pt. 7 pt. 7 pt.

4. How many moles of H_2 are reacted with N_2 to form 10.0 moles of NH_3 ?

$$\frac{10 \text{ moles NH}_3}{1} \times \frac{3 \text{ H}_2}{2 \text{ mole NH}_3} = \boxed{15 \text{ mole H}_2}$$

7 pt. 7 pt. 7 pt.

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Per: _____ Date: _____



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Quiz 4D: The Concept of the Mole

For the following questions, use the following equation: $\underline{1} \text{ N}_2 + \underline{3} \text{ H}_2 \rightarrow \underline{2} \text{ NH}_3$] 7 pt

1. If I have 12 liters of ammonia, how many moles of N_2 do I have?

$$\frac{12 \text{ liters NH}_3}{1} \times \frac{1 \text{ mol NH}_3}{22.4 \text{ L NH}_3} \times \frac{1 \text{ N}_2}{2 \text{ NH}_3} = \boxed{0.268 \text{ mole N}_2}$$

2. If I have 0.056 mol of NH_3 , how many mol of H_2 are used?

$$\frac{0.056 \text{ NH}_3}{1} \times \frac{3 \text{ H}_2}{2 \text{ NH}_3} = \boxed{0.084 \text{ mol H}_2}$$

3. How many moles of H_2 are needed to make 12.06 moles of NH_3 ?

$$\frac{12.06 \text{ NH}_3}{1} \times \frac{3 \text{ H}_2}{2 \text{ NH}_3} = \boxed{18.09 \text{ mole H}_2}$$

4. How many moles of N_2 are reacted with H_2 to form 8 moles of NH_3 ?

$$\frac{8 \text{ mol NH}_3}{1} \times \frac{1 \text{ N}_2}{2 \text{ NH}_3} = \boxed{4 \text{ moles N}_2}$$