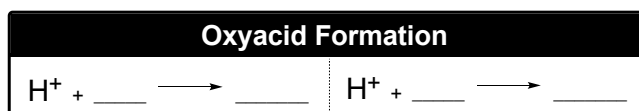


## CONCEPT: OXYACIDS

- Represent covalent compounds containing the **hydrogen ion** bonded to a polyatomic ion containing \_\_\_\_\_.



**EXAMPLE:** Which of the following represents the possible structure of an oxyacid?

- a)  $\text{NaNO}_3$                       b)  $\text{HCHO}_2$                       c)  $\text{KOH}$                       d)  $\text{HCN}$

## Oxyacid Strength

- Oxyacid Strength Rule:** If a neutral oxyacid has \_\_\_\_\_ or more O than H then the oxyacid is a \_\_\_\_\_ acid.

Oxyacid Strength		
$\text{HClO}_3$	$\text{HOCN}$	$\text{HC}_4\text{H}_7\text{O}_2$
_____ Oxygen	_____ Oxygen	_____ Oxygen
— _____ Hydrogen	— _____ Hydrogen	— _____ Hydrogen
_____	_____	_____

- ☐ **EXCEPTION:** \_\_\_\_\_ and \_\_\_\_\_ since their nonhydrogen elements have \_\_\_\_\_ electronegativities.

**EXAMPLE:** Which of the following represents a strong oxyacid?

- a)  $\text{HNO}_2$                       b)  $\text{HC}_2\text{H}_3\text{O}_2$                       c)  $\text{HClO}$                       d)  $\text{HSO}_4^-$                       e)  $\text{HBrO}_3$

## Comparing Oxyacid Strength

- When comparing the strengths of Oxyacids:

Comparing Oxyacid Strength	
<div><b>Different # of Oxygens Remaining</b></div> <div>If difference between O and H are <b>NOT</b> the <b>SAME</b>:</div> <div><input type="checkbox"/> _____ Oxygens = _____ acidic</div> <div><math>\text{HIO}</math> vs. <math>\text{HIO}_2</math></div>	<div><b>Same # of Oxygens Remaining</b></div> <div>If difference between O and H are the <b>SAME</b>:</div> <div><input type="checkbox"/> _____ EN of Central Element = _____ acidic</div> <div><math>\text{H}_2\text{SO}_3</math> vs. <math>\text{H}_2\text{SeO}_3</math></div>

**EXAMPLE:** Rank the following oxyacids in terms of increasing acidity.

- i.  $\text{HClO}_3$                       ii.  $\text{HBrO}_4$                       iii.  $\text{HBrO}_3$                       iv.  $\text{HClO}_4$                       v.  $\text{HIO}$