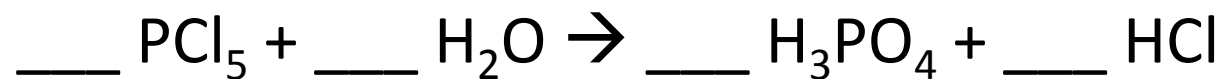


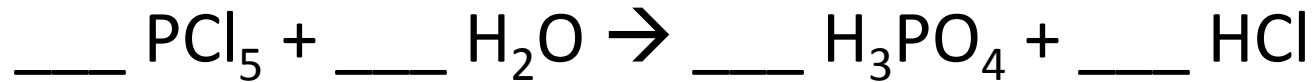
Balancing Chemical Equations

Balance the chemical reaction:



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Step 1. Write out coefficients



Step 2. Construct the atom equations:

$$\text{P: } a = x$$

$$\text{Cl: } 5a = y$$

$$\text{H: } 2b = 3x + y$$

$$\text{O: } b = 4x$$

Balancing Chemical Equations

Step 3. Make an initial guess and solve for coefficients:

$$\text{P: } a = x$$

$$\text{Cl: } 5a = y \text{ Try } a = 1, \text{ then } y = 5$$

$$\text{H: } 2b = 3x + y$$

$$\text{O: } b = 4x$$

Balancing Chemical Equations

Step 3. Make an initial guess and solve for coefficients:

P: $a = x$ and $x = 1$

Cl: $5a = y$ Try $a = 1$, then $y = 5$

H: $2b = 3x + y$

O: $b = 4x$

Balancing Chemical Equations

Step 3. Make an initial guess and solve for coefficients:

P: $a = x$ and $x = 1$

Cl: $5a = y$ Try $a = 1$, then $y = 5$

H: $2b = 3x + y$ Use this equation to check consistency!

O: $b = 4x$ and $b = 4$

Balancing Chemical Equations

Step 3. Make an initial guess and solve for coefficients:

P: $a = x$ and $x = 1$

Cl: $5a = y$ Try $a = 1$, then $y = 5$

H: $2b = 3x + y$ Use this equation to check consistency!

O: $b = 4x$ and $b = 4$

$2(4) = 3(1) + 5$? Yes!

Write the balanced reaction:

