

<b>Labs</b> pH/PCO2/O2 [Assume albumin is 4 g/dL]	<b>1<sup>o</sup> Process</b> <b>[Choose 1]</b>	<b>Anion Gap</b> <b>[Na – Cl – HCO3]</b> NI = albumin * 2.5	<b>Compensation?</b> Calculate the <u>expected</u> PCO2 or HCO3. [Is there 2 <sup>nd</sup> disturbance?]	$\frac{\Delta AG}{\Delta HCO3}$ Calculate only if ↑ AG	<b>Osm Gap: Lab Osm – Calc</b> $Osm = 2 * Na + \frac{BUN}{2.8} + \frac{Glucose}{18}$ ↑ if > 15-20	<b>Choose the most likely etiology.</b>							
<p style="text-align: center;"><b>7.5/48/85</b></p> <table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">143</td> <td style="padding: 5px;">98</td> <td style="padding: 5px;">12</td> <td rowspan="2" style="font-size: 2em; padding: 0 10px;">}</td> </tr> <tr> <td style="padding: 5px;">2.8</td> <td style="padding: 5px;">36</td> <td style="padding: 5px;">0.8</td> </tr> </table> <p style="text-align: center;"><b>Osmolality: 300 mosm/kg</b></p>	143	98	12	}	2.8	36	0.8	Met acidosis Resp acidosis Met alkalosis Resp alkalosis					Metformin Ethylene glycol Isopropyl alcohol Vomiting COPD Exacerbation
143	98	12	}										
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<p style="text-align: center;"><b>7.07/13/55</b></p> <table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">133</td> <td style="padding: 5px;">93</td> <td style="padding: 5px;">30</td> <td rowspan="2" style="font-size: 2em; padding: 0 10px;">}</td> </tr> <tr> <td style="padding: 5px;">3.8</td> <td style="padding: 5px;">4</td> <td style="padding: 5px;">2.8</td> </tr> </table> <p style="text-align: center;"><b>Osmolality: 330 mosm/kg</b></p>	133	93	30	}	3.8	4	2.8	Met acidosis Resp acidosis Met alkalosis Resp alkalosis					Metformin Ethylene glycol Isopropyl alcohol Vomiting COPD Exacerbation
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144	105	18	}										
3.7	28	1.2											
<p style="text-align: center;"><b>7.4/40/89</b></p> <table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">136</td> <td style="padding: 5px;">101</td> <td style="padding: 5px;">15</td> <td rowspan="2" style="font-size: 2em; padding: 0 10px;">}</td> </tr> <tr> <td style="padding: 5px;">3.8</td> <td style="padding: 5px;">24</td> <td style="padding: 5px;">0.6</td> </tr> </table> <p style="text-align: center;"><b>Osmolality: 335 mosm/kg</b></p>	136	101	15	}	3.8	24	0.6	Met acidosis Resp acidosis Met alkalosis Resp alkalosis					Metformin Ethylene glycol Isopropyl alcohol Vomiting COPD Exacerbation
136	101	15	}										
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<b>Labs</b> pH/PCO2/O2 [Assume albumin is 4 g/dL]	<b>1<sup>o</sup> Process</b> <b>[Choose 1]</b>	<b>Anion Gap</b> [Na - Cl - HCO3] NI = albumin * 2.5	<b>Compensation?</b> Calculate the <u>expected</u> PCO2 or HCO3. [Is there 2 <sup>nd</sup> disturbance?]	$\frac{\Delta AG}{\Delta HCO3}$ Calculate only if ↑ AG	<b>Osm Gap: Lab Osm - Calc</b> $Osm = 2 * Na + \frac{BUN}{2.8} + \frac{Glucose}{18}$ ↑ if > 15-20	<b>Choose the most likely etiology.</b>							
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143	98	12	} 99										
2.8	36	0.8											
<b>7.07/13/55</b> <table border="1" style="margin: 5px auto; border-collapse: collapse;"> <tr><td style="padding: 2px;">133</td><td style="padding: 2px;">93</td><td style="padding: 2px;">30</td><td rowspan="2" style="border: none; padding-left: 5px;">} 80</td></tr> <tr><td style="padding: 2px;">3.8</td><td style="padding: 2px;">4</td><td style="padding: 2px;">2.8</td></tr> </table> <b>Osmolality: 330 mosm/kg</b>	133	93	30	} 80	3.8	4	2.8	<b>Met acidosis</b>	<b>36</b>	ePCO2 = 1.5 (4) + 8 = 14 mm Hg	<b>26/20 ≈ 1</b>	<b>Osmolality: 330 mosm/kg</b> <b>Calc. Osm: 281 osm/kg</b> <b>Gap: 49</b>	<b>Ethylene glycol</b>
133	93	30	} 80										
3.8	4	2.8											
<b>7.33/25/88</b> <table border="1" style="margin: 5px auto; border-collapse: collapse;"> <tr><td style="padding: 2px;">140</td><td style="padding: 2px;">112</td><td style="padding: 2px;">25</td><td rowspan="2" style="border: none; padding-left: 5px;">} 133</td></tr> <tr><td style="padding: 2px;">4.0</td><td style="padding: 2px;">10</td><td style="padding: 2px;">1.5</td></tr> </table> <b>Osmolality: 305 mosm/kg</b>	140	112	25	} 133	4.0	10	1.5	<b>Met acidosis</b>	<b>18</b>	ePCO2 = 1.5 (10) + 8 ePCO2 = 23 mm Hg	N/A	<b>Osmolality: 305 mosm/kg</b> <b>Calc. Osm: 296 mosm/kg</b> <b>Gap: 9</b>	<b>Metformin</b>
140	112	25	} 133										
4.0	10	1.5											
<b>7.22/72/80</b> <table border="1" style="margin: 5px auto; border-collapse: collapse;"> <tr><td style="padding: 2px;">144</td><td style="padding: 2px;">105</td><td style="padding: 2px;">18</td><td rowspan="2" style="border: none; padding-left: 5px;">} 101</td></tr> <tr><td style="padding: 2px;">3.7</td><td style="padding: 2px;">28</td><td style="padding: 2px;">1.2</td></tr> </table> <b>Osmolality: 301 mosm/kg</b>	144	105	18	} 101	3.7	28	1.2	<b>Resp acidosis</b>	<b>11</b>	Acute eHCO3 = 27 mm Hg  Chronic eHCO3 = 36 mm Hg	N/A	<b>Osmolality: 301 mosm/kg</b> <b>Calc. Osm: 294 mosm/kg</b> <b>Gap: 6</b>	<b>COPD Exacerbation</b>
144	105	18	} 101										
3.7	28	1.2											
<b>7.4/40/89</b> <table border="1" style="margin: 5px auto; border-collapse: collapse;"> <tr><td style="padding: 2px;">136</td><td style="padding: 2px;">101</td><td style="padding: 2px;">15</td><td rowspan="2" style="border: none; padding-left: 5px;">} 87</td></tr> <tr><td style="padding: 2px;">3.8</td><td style="padding: 2px;">24</td><td style="padding: 2px;">0.6</td></tr> </table> <b>Osmolality: 335 mosm/kg</b>	136	101	15	} 87	3.8	24	0.6	<b>N/A</b>	<b>11</b>	N/A	N/A	<b>Osmolality: 335 mosm/kg</b> <b>Calc. Osm: 282 mosm/kg</b> <b>Gap: 52</b>	<b>Isopropyl alcohol</b>
136	101	15	} 87										
3.8	24	0.6											