

Breakout Exercise #1

If a 12 voltage flash-light battery with a capacity of 300 mAh is needed to be used for 45 minutes, what is the maximum amount of current the flash-light should be allowed to draw from the battery?



$$\text{Battery Life (hours)} = \frac{\text{Ampere - Hour (Ah) Rating}}{\text{Amperes Drawn (A)}}$$

$$\text{Amperes Drawn (A)} = \frac{\text{Ampere - Hour (Ah) Rating}}{\text{Battery Life (hours)}}$$

$$\text{Amperes Drawn (A)} = \frac{300 \text{ mAh}}{0.75 \text{ hrs}} = 400 \text{ mA}$$

Breakout Exercise #2



A Mini-Mag Light can be purchased with an incandescent bulb or a LED array. The incandescent bulb draws 350 mAmps and the LED array draws 180 mAmps. For these two bulb types, calculate the usage time (battery life) for the four batteries listed below

Battery Type (all AA)	Capacity (mAh)	Incandescent Bulb	LED Array
Nickel-Metal Hydride	1550	4.43 hrs	8.61 hrs
Nickel Cadmium	1000	2.86 hrs	5.56 hrs
Lithium	3000	8.57 hrs	16.67 hrs
Alkaline	2780	7.94 hrs	15.44 hrs