**Part 1.**

Emma wants to go camping with her friends! They want to go swimming at the lake while they are there but Emma’s body isn’t waterproof. She needs to prepare first! The plan is to use waterproof paint to protect Emma’s body but Emma isn’t sure how much waterproof paint she needs. Emma knows that each fluid ounce of waterproof paint covers three square inches. Your goal will be to help Emma figure out how much waterproof paint is needed using the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Body Part** | **Surface Area**  **(inches)** | **Volume of Paint**  **(fluid oz)** |
| 0 | Feet | 6 | 2 |
| 1 | Legs | 12 |  |
| 2 | Torso |  | 6 |

**Solution**:

**STEP ONE**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Body Part** | **Surface Area**  **(inches)** | **Volume of Paint (fluid oz)** |
| 0 | Feet | 6 | 2 |
| 1 | Legs | 12 | ***4*** |
| 2 | Torso |  | 6 |

**So…**

**STEP TWO**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Body Part** | **Surface Area**  **(inches)** | **Volume of Paint (fluid oz)** |
| 0 | Feet | 6 | 2 |
| 1 | Legs | 12 | ***4*** |
| 2 | Torso | ***18*** | 6 |

**So…**

**Part 2.**

...Well except for Emma’s arms and head! If Emma wants to go into the water all the way, Emma’s hands, arms, and head must be protected also! Help Emma out fill out the following table:

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Body Part** | **Surface Area**  **(inches)** | **Volume of Paint (fluid oz)** |
| 0 | Feet | 6 | 2 |
| 1 | Arms | 3 |  |
| 2 | Head |  | 3 |

**Solution:**

**STEP ONE**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Body Part** | **Surface Area**  **(inches)** | **Volume of Paint (fluid oz)** |
| 0 | Feet | 6 | 2 |
| 1 | Arms | 3 | ***1*** |
| 2 | Head |  | 3 |

(cross-multiply)

**So…**

**STEP TWO**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Body Part** | **Surface Area**  **(inches)** | **Volume of Paint (fluid oz)** |
| 0 | Feet | 6 | 2 |
| 1 | Arms | 3 | ***1*** |
| 2 | Head | ***9*** | 3 |

1 (cross-multiply)

**So…** 3

**Part 3.**

With plenty of waterproof paint, Emma is ready to head to the camping spot! Emma is going to ride her bike! Once Emma gets on the road, Emma will travel at a constant rate of 10 mph (Emma is a very fast bike rider!). Use the below table to help Emma figure out where she should stop to rest at different points throughout the ride.

|  |  |  |
| --- | --- | --- |
| **Step** | **Time (hours)** | **Distance (miles)** |
| 0 | 2.5 | 25 |
| 1 |  | 30 |
| 2 | 7.25 |  |

**Solution**:

**STEP ONE**

|  |  |  |
| --- | --- | --- |
| **Step** | **Time (hours)** | **Distance (miles)** |
| 0 | 2.5 | 25 |
| 1 | ***3*** | 30 |
| 2 | 7.25 |  |

**STEP TWO**

|  |  |  |
| --- | --- | --- |
| **Step** | **Time (hours)** | **Distance (miles)** |
| 0 | 2.5 | 25 |
| 1 | ***3*** | 30 |
| 2 | 7.25 | ***72.5*** |

Now know the unit rate:

**Part 4.**

Since it is going to take a while to reach the pool, Emma will want to stop and get some snacks! Emma LOVES M&M’s. Emma wants to have A LOT of M&Ms so if Nancy, Pedro, Chris and Nina are at the pool also, more bags are definitely needed. Emma decides to figure out how many total M&Ms everyone will have depending on how many bags are bought.

|  |  |  |
| --- | --- | --- |
| **Step** | **Bags of M&Ms** | **Total**  **M&Ms** |
| 0 | 1 | 110 |
| 1 | 2 |  |
| 2 | 5 |  |
| 3 |  | 770 |

**STEP 1**

|  |  |  |
| --- | --- | --- |
| **Step** | **Bags of M&Ms** | **Total**  **M&Ms** |
| 0 | 1 | 110 |
| 1 | 2 | ***220*** |
| 2 | 5 |  |
| 3 |  | 770 |

**So…**

**STEP 2**

|  |  |  |
| --- | --- | --- |
| **Step** | **Bags of M&Ms** | **Total**  **M&Ms** |
| 0 | 1 | 110 |
| 1 | 2 | ***220*** |
| 2 | 5 | ***550*** |
| 3 |  | 770 |

**So…**

**STEP 3**

|  |  |  |
| --- | --- | --- |
| **Step** | **Bags of M&Ms** | **Total**  **M&Ms** |
| 0 | 1 | 110 |
| 1 | 2 | ***220*** |
| 2 | 5 | ***550*** |
| 3 | ***7*** | 770 |

**So…**

**Part 5.**

Emma and her friends have been talking about swimming at the lake! Emma is a strong swimmer and wonders if she is faster than her friend. Help Emma figure out how far she can go for different times and distances; this will help her figure out if she might be faster than Nancy.

|  |  |  |
| --- | --- | --- |
| **Step** | **Time (seconds)** | **Distance Swam (feet)** |
| 0 | 2.5 | 10 |
| 1 | 7.3 |  |
| 2 | 12.5 |  |
| 3 |  | 80 |

**STEP 1**

|  |  |  |
| --- | --- | --- |
| **Step** | **Time (seconds)** | **Distance Swam (feet)** |
| 0 | 2.5 | 10 |
| 1 | 7.3 | ***29.2*** |
| 2 | 12.5 |  |
| 3 |  | 80 |

(simplify)

**So…**

**STEP 2**

|  |  |  |
| --- | --- | --- |
| **Step** | **Time (seconds)** | **Distance Swam (feet)** |
| 0 | 2.5 | 10 |
| 1 | 7.3 | ***29.2*** |
| 2 | 12.5 | ***50*** |
| 3 |  | 80 |

(simplify)

**So…**

**STEP 3**

|  |  |  |
| --- | --- | --- |
| **Step** | **Time (seconds)** | **Distance Swam (feet)** |
| 0 | 2.5 | 10 |
| 1 | 7.3 | ***29.2*** |
| 2 | 12.5 | ***50*** |
| 3 | ***20*** | 80 |

**So…**

**Part 6.**

Emma is powered by a special type of electric battery. She wants to find a way to tell how long her batteries last so that she has a better idea of how many she needs for camping. Help Emma figure out how much battery power she will use depending on how long she is out.

|  |  |  |
| --- | --- | --- |
| **Step** | **Battery Usage** | **Time** |
| 0 | of battery’s power | of an hour |
| 1 |  | 1 hours |
| 2 |  | 3 hours |

**Solution**

**Step 1**

|  |  |  |
| --- | --- | --- |
| **Step** | **Battery Usage** | **Time** |
| 0 | of battery’s power | of an hour |
| 1 | **of battery’s power** | 1 hour |
| 2 |  | 3 hours |

**In 1 hour, of battery’s power is used**

**Step 2**

|  |  |  |
| --- | --- | --- |
| **Step** | **Battery Usage** | **Time** |
| 0 | of battery’s power | of an hour |
| 1 | **of battery’s power** | 1 hour |
| 2 | **of battery’s power** | 3 hours |

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**In 3 hours, of the battery’s power is used**