**Lower Elementary:**

*Question:* Grace has been keeping track of the sunny, cloudy, and rainy days over the past two weeks. She recorded 4 sunny days, 7 cloudy days, and 3 rainy days. How many more days were cloudy or rainy than sunny?

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**Upper Elementary:**

*Question:* After a bad rainstorm Joey checked his rain gauge and read 2 1/4 inches of rain. Joey wants to know how much snow the storm would have brought if it had been cold enough. If one inch of rain is equivalent to 13 inches of snow, how many inches of snow would be left after the storm?

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**Middle School:**

*Question:* On the news this morning, Haroula heard the weather person say, “Yesterday morning’s rain totaled 2.4 inches.” She is curious what 2.4 inches of rain really means. If it rained at a steady rate from 4 am to 12 pm, use the chart below to help Haroula determine the type of rain that fell yesterday. (Use 1 inch ≈ 25 mm)

|  |  |
| --- | --- |
| **Type of Rain** | **Rate (in mm/hr)** |
| Light | ***x*** ≤ 0.5 |
| Moderate | 0.5 < ***x*** ≤ 4.0 |
| Heavy | 4.0 < ***x*** ≤ 8.0 |
| Very Heavy | ***x*** ≥ 8.0 |

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**Algebra and Up:**

*Question:* There is a 40% chance of rain for Saturday and 40% chance of rain on Sunday. What is the probability it will rain on both Saturday and Sunday?

**Lower Elementary:**

*Question:* Grace has been keeping track of the sunny, cloudy, and rainy days over the past two weeks. She recorded 4 sunny days, 7 cloudy days, and 3 rainy days. How many more days were cloudy or rainy than sunny?

*Answer:* 6 days

*Solution:* The total number of cloudy and rainy days is 7 + 3 = 10 days. There are 4 sunny days so, 10 – 4 = 6 more cloudy and rainy days than sunny days.

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**Upper Elementary:**

*Question:* After a bad rainstorm Joey checked his rain gauge and read 2 1/4 inches of rain. Joey wants to know how much snow the storm would have brought if it had been cold enough. If one inch of rain is equivalent to 13 inches of snow, how many inches of snow would be left after the storm?

*Answer:* 29 1/4 inches

*Solution:* Since 1 inch of rain is equivalent to 13 inches of snow, 2 inches of rain equals 26 inches of snow. To find how much 1/4 inches of rain is in snow, we need to find 1/4 of 13. To find a quarter of a number, we can take half of a half. Half of 13 is 6 1/2, and half of that is 3 1/4 inches.

Altogether, 26 + 3 1/4 = 29 1/4 inches.

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**Middle School:**

*Question:* On the news this morning, Haroula heard the weather person say, “Yesterday morning’s rain totaled 2.4 inches.” She is curious what 2.4 inches of rain really means. If it rained at a steady rate from 4 am to 12 pm, use the chart below to help Haroula determine the type of rain that fell yesterday. (Use 1 inch ≈ 25 mm)

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| **Type of Rain** | **Rate (in mm/hr)** |
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| Very Heavy | ***x*** ≥ 8.0 |

*Answer:* Heavy Rainfall

*Solution:* Using 1 inch ≈ 25 mm, we find 2.4 inches ≈ 60 mm. Since there are 8 hours from 4 a.m. to 12 p.m. we can find the rate of rainfall over that time period, 60 mm ÷ 8 hours = 7.5 mm/hr. Now, we can use the chart to see 7.5 mm/hr is considered heavy rainfall.

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**Algebra and Up:**

*Question:* There is a 40% chance of rain for Saturday and 40% chance of rain on Sunday. What is the probability it will rain on both Saturday and Sunday?

*Answer:* 16% or 0.16 or 4/25

*Solution:* Making a probability tree, we see



Since there is a 40% of rain on both days, we multiply 0.40 × 0.40 = 0.16.