Best Friends Forever – November 18, 2024

Problems & Solutions

Ailee, Bailey, Camie and Demi grew up on the same street and have been best friends since elementary school. The girls are all different ages ranging from 14 to 17 years old. Bailey is younger than Camie, but older than Demi. Demi, who is not 15 years old, is a year younger than Ailee. What is Ailee's age?

> *Let's use A, B, C and D to represent Ailee, Bailey, Camie and Demi, respectively. Starting with the fact that Bailey is older than Demi and younger than Camie, the possible arrangements of the girls from youngest to oldest are DBCA, DBAC, DABC and ADBC. Since Ailee is a year older than Demi, the correct arrangement must be DABC, which means that Ailee is **15** years old.*

Each girl participates in a different one of four extracurricular activities: cheerleading, field hockey, softball and basketball. Camie does not play field hockey or basketball. Neither Bailey nor Demi plays softball. Ailee participates in an activity that does not utilize a ball. Bailey participates in an activity that typically takes place indoors. In which extracurricular activity does Bailey participate?

> *Since Ailee participates in an activity that does not utilize a ball, she must be a cheerleader. We also are told that neither Bailey nor Demi plays softball. Therefore, Camie must be the one who plays softball. That leaves field hockey and basketball as the possible activities for Bailey. But since Bailey participates in an activity that typically takes place indoors and field hockey is an outdoor activity, Bailey must play **basketball**.*

Ailee, Bailey, Camie and Demi have decided to try something new. So next month, all four girls will attend a week-long golf camp at a local university. While attending the golf camp, the girls will stay in separate rooms in the same dorm. The four consecutive rooms to which the girls have been assigned are adjoining rooms 101 and 102 and adjoining rooms 103 and 104. Bailey and Camie have not been assigned to adjoining rooms. There is one room between Ailee's and Bailey's assigned rooms. Demi's assigned room number is prime. What is the sum of Camie's and Demi's assigned room numbers?

> *Since Demi's room number is prime, she must be assigned to room 101 or 103. We also see that Demi must be assigned to an adjoining room with either Bailey or Camie. If Demi is in an adjoining room with Camie, that leaves Ailee and Bailey in adjoining rooms. But we are told that there is one room between Ailee and Bailey, so Demi must be in an adjoining room with Bailey. That means the room assignments could be 101-Demi, 102-Bailey, 103-Camie, 104-Ailee; or 101-Camie, 102-Ailee, 103-Demi, 104-Bailey. In either case, the sum of Camie's and Demi's assigned room numbers is 101 + 103 = **204**.*

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