

Question ID 7f5015ca

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Probability and conditional probability	

ID: 7f5015ca

The table summarizes the distribution of age and assigned group for 90 participants in a study.

	0–9 years	10–19 years	20+ years	Total
Group A	7	14	9	30
Group B	6	4	20	30
Group C	17	12	1	30
Total	30	30	30	90

One of these participants will be selected at random. What is the probability of selecting a participant from group A, given that the participant is at least 10 years of age? (Express your answer as a decimal or fraction, not as a percent.)

ID: 7f5015ca Answer

Correct Answer: .3833, 23/60

Rationale

The correct answer is $\frac{23}{60}$. It's given that one of the participants will be selected at random. The probability of selecting a participant from group A given that the participant is at least 10 years of age is the number of participants in group A who are at least 10 years of age divided by the total number of participants who are at least 10 years of age. The table shows that in group A, there are 14 participants who are 10–19 years of age and 9 participants who are 20 + years of age. Therefore, there are 14 + 9, or 23, participants in group A who are at least 10 years of age. The table also shows that there are a total of 30 participants who are 10–19 years of age and 30 participants who are 20 + years of age. Therefore, there are a total of 30 + 30, or 60, participants who are at least 10 years of age. It follows that the probability of selecting a participant from group A given that the participant is at least 10 years of age is $\frac{23}{60}$. Note that 23/60, .3833, and 0.383 are examples of ways to enter a correct answer.

Question Difficulty: Hard

Question ID 1f7a4a78

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Probability and conditional probability	

ID: 1f7a4a78

A grove has **6** rows of birch trees and **5** rows of maple trees. Each row of birch trees has **8** trees **20** feet or taller and **6** trees shorter than **20** feet. Each row of maple trees has **9** trees **20** feet or taller and **7** trees shorter than **20** feet. A tree from one of these rows will be selected at random. What is the probability of selecting a maple tree, given that the tree is **20** feet or taller?

- A. $\frac{9}{164}$
- B. $\frac{3}{10}$
- C. $\frac{15}{31}$
- D. $\frac{9}{17}$

ID: 1f7a4a78 Answer

Correct Answer: C

Rationale

Choice C is correct. If a tree from one of these rows is selected at random, the probability of selecting a maple tree, given that the tree is 20 feet or taller, is equal to the number of maple trees that are 20 feet or taller divided by the total number of trees that are 20 feet or taller. It's given that there are 6 rows of birch trees, and each row of birch trees has 8 trees that are 20 feet or taller. This means that there are a total of 68, or 48, birch trees that are 20 feet or taller. It's given that there are 5 rows of maple trees, and each row of maple trees has 9 trees that are 20 feet or taller. This means that there are a total of 59, or 45, maple trees that are 20 feet or taller. It follows that there are a total of 48 + 45, or 93, trees that are 20 feet or taller. Therefore, the probability of selecting a maple tree, given that the tree is 20 feet or taller, is $\frac{45}{93}$, or $\frac{15}{31}$.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Hard

Question ID 8054710f

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Probability and conditional probability	

ID: 8054710f

At a conference, there are a total of **275** attendees. Each attendee is assigned to either group A, group B, or group C. If one of these attendees is selected at random, the probability of selecting an attendee who is assigned to group A is **0.44** and the probability of selecting an attendee who is assigned to group B is **0.24**. How many attendees are assigned to group C?

ID: 8054710f Answer

Correct Answer: 88

Rationale

The correct answer is 88. It's given that there are a total of 275 attendees and each attendee is assigned to either group A, group B, or group C. It's also given that if one of these attendees is selected at random, the probability of selecting an attendee who is assigned to group A is 0.44 and the probability of selecting an attendee who is assigned to group B is 0.24. It follows that there are 0.44×275 , or 121, attendees who are assigned to group A and 0.24×275 , or 66, attendees who are assigned to group B. The number of attendees who are assigned to group C is the number of attendees who are not assigned to group A or group B. In other words, the number of attendees who are assigned to group C is the total number of attendees minus the number of attendees who are assigned to group A and group B. Therefore, the number of attendees who are assigned to group C is $275 - 121 - 66$, or 88.

Question Difficulty: Hard