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Verbal Reasoning-Logical Venn Diagrams (English)

Q: In a class of 50 students, 30 students play football, 20 play cricket, and 10 play both. How many students don't play any sport?

Long Answer: To find the number of students who don't play any sport, we first add the number of students playing football and cricket (30 + 20 = 50). Then, we subtract the number of students who play both sports (10) from the total. So, 50 - 10 = 40 students play only one sport. Finally, subtracting this from the total number of students (50), we get 50 - 40 = 10 students who don't play any sport.

Short Answer: Using the principle of exclusion, we find that the number of students who don't play any sport is the total minus the number of students playing both sports. Thus, 50 - 10 = 40 students don't play any sport.

Q: In a survey of 200 people, 120 like tea, 80 like coffee, and 50 like both. How many people don't like either tea or coffee?

Long Answer: First, we add the number of people who like tea and coffee (120 + 80 = 200). Then, we subtract the number of people who like both (50) from this total, leaving us with 200 - 50 = 150 people who like either tea or coffee. Finally, subtracting this from the total surveyed (200), we find that 200 - 150 = 50 people don't like either tea or coffee.

Short Answer: Subtracting the number of people who like both tea and coffee (50) from the total surveyed (200), we get 200 - 50 = 150. This gives us the number of people who like either tea or coffee. Therefore, 50 people don't like either tea or coffee.

Q: In a group of 80 people, 45 drink coffee, 30 drink tea, and 15 drink neither. How many drink both tea and coffee?

Long Answer: Adding the number of people who drink coffee and tea (45 + 30 = 75), we find that 75 people drink either tea or coffee. Subtracting the number of people who drink neither (15) from this total gives us 75 - 15 = 60 people who drink either tea or coffee. Since we are asked for the number of people who drink both, we subtract this from the total who drink either, yielding 60 - 45 = 15 people who drink both tea and coffee.

Short Answer: By subtracting the number of people who drink neither (15) from the total who drink either tea or coffee (75), we find that 60 people drink either tea or coffee. Therefore, 15 people drink both tea and coffee.

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Q: In a conference, 60% of the attendees speak English, 40% speak French, and 20% speak both. If there are 400 attendees, how many speak neither language?

Long Answer: First, we find the number of attendees who speak either English or French by adding 60% of 400 (240) to 40% of 400 (160), which equals 400 attendees. Then, subtracting the 20% who speak both languages (80) from this total gives us 400 - 80 = 320 attendees who speak either English or French. Since the total attendees are 400, the number who speak neither language is 400 - 320 = 80.

Short Answer: By summing the percentages of attendees speaking English and French (60% + 40% = 100%) and subtracting those who speak both (20%), we find that 80% of the attendees speak either English or French. Therefore, 20% don't speak either language, which is 80 attendees.

Q: In a zoo, there are monkeys, tigers, and lions. 40% of the animals are monkeys, 30% are tigers, and 20% are lions. If 10% are monkeys and tigers, 5% are monkeys and lions, and 8% are tigers and lions, how many animals are there in total?

Long Answer: Let's denote the total number of animals as xx. From the given percentages, we have 40% of xx as monkeys, 30% as tigers, and 20% as lions. Also, 10% are monkeys and tigers, 5% are monkeys and lions, and 8% are tigers and lions. Adding the percentages gives us 40% + 30% + 20% = 90%. This means the total percentage accounted for is 90%, leaving 10% unaccounted for, which represents the overlap of all three groups. Therefore, 10% of xx represents the total overlap. To find the value of xx, we solve the equation: $10\% \times x = 10\% 10\% \times x = 10\%$, which gives us x = 100x = 100. So, there are 100 animals in total.

Short Answer: By considering the overlapping percentages and assuming the total percentage adds up to 100%, we find that the unaccounted percentage (10%) represents the overlap of all three groups. Therefore, the total number of animals is equal to this percentage, which is 100.

Q: In a company, 60% of employees are engineers, 50% are managers, and 30% are both engineers and managers. If there are 200 employees, how many are neither engineers nor managers?

Long Answer: Let's denote the total number of employees as xx. From the given percentages, we have 60% of xx as engineers, 50% as managers, and 30% as both engineers and managers. Adding the percentages gives us 60% + 50% = 110%. However, this counts the overlapping section twice, so we need to subtract it once. Thus, we subtract the percentage of employees who are both engineers and managers (30%) from the total percentage, leaving us with 110%-30%=80%110%-30%=80% of xx who are either engineers or managers. Therefore, 80% of xx equals 200 employees. To find the value of xx, we solve the equation: $80\% \times x=20080\% \times x=200$, which gives us x=250x=250. So, there are 250 employees in total. Now, to find the number of employees who are neither engineers nor managers, we

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subtract the number of employees who are either engineers or managers (200) from the total (250), yielding 250–200=50250–200=50 employees.

Short Answer: By considering the overlapping percentages and correcting for double-counting, we find that 80% of the total employees are either engineers or managers. Therefore, the number of employees who are neither engineers nor managers is the total minus this percentage, which is 250–200=50250–200=50 employees.

Q: In a group of 150 students, 90 like mathematics, 80 like science, and 60 like both. How many students like exactly one subject?

Long Answer: First, we add the number of students who like mathematics and science (90 + 80 = 170). Then, we subtract the number of students who like both (60) from this total, leaving us with 170 - 60 = 110 students who like either mathematics or science. Finally, subtracting this from the total number of students (150), we get 150 - 110 = 40 students who like exactly one subject.

Short Answer: Subtracting the number of students who like both mathematics and science (60) from the total number of students (150), we find that 90 students like exactly one subject.

Q: In a group of 200 employees, 120 are male, 100 are managers, and 80 are both male and managers. How many female non-managers are there?

Long Answer: Let's denote the total number of female employees as xx. From the given information, we have 120 male employees and 80 employees who are both male and managers. So, the total number of male managers is 80. Therefore, the total number of managers is 100 - 80 = 20, which must be female managers. Since there are 100 managers in total, there are 100 - 20 = 80 male managers. Now, we know that there are 80 male managers, leaving 100 - 80 = 20 female managers. Thus, there are 20 female managers, and since there are 100 male employees in total, there are 200-100=100200-100=100 female employees. Since there are 20 female managers, the number of female non-managers is 100-20=80100-20=80.

Short Answer: By subtracting the number of female managers (20) from the total number of female employees (100), we find that there are 80 female non-managers.

Q: In a school, 70% of students like math, 60% like science, and 40% like both. If there are 200 students, how many like neither subject?

Long Answer: First, we find the number of students who like either math or science by adding 70% of 200 (140) to 60% of 200 (120), which equals 260. Then, we subtract the 40% who like both subjects (80) from this total, giving us 260 - 80 = 180 students who like either math or science. Since there are 200 students in total, the number who like neither subject is 200 - 180 = 20.



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Short Answer: By considering the overlapping percentages and correcting for double-counting, we find that 90% of the students like either math or science. Therefore, the number of students who like neither subject is 10%, which is 20 students.

Q: In a group of 300 people, 180 like ice cream, 150 like cake, and 100 like both. How many people like exactly one dessert?

Long Answer: First, we add the number of people who like ice cream and cake (180 + 150 = 330). Then, we subtract the number of people who like both (100) from this total, leaving us with 330 - 100 = 230 people who like either ice cream or cake. Finally, subtracting this from the total number of people (300), we get 300 - 230 = 70 people who like exactly one dessert.

Short Answer: Subtracting the number of people who like both ice cream and cake (100) from the total number of people (300), we find that 200 people like exactly one dessert.

Q: In a group of 120 students, 80 like reading, 60 like writing, and 40 like both. How many students like neither reading nor writing?

Long Answer: First, we add the number of students who like reading and writing (80 + 60 = 140). Then, we subtract the number of students who like both (40) from this total, leaving us with 140 - 40 = 100 students who like either reading or writing. Finally, subtracting this from the total number of students (120), we get 120 - 100 = 20 students who like neither reading nor writing.

Short Answer: Subtracting the number of students who like both reading and writing (40) from the total number of students (120), we find that 80 students like neither reading nor writing.

Q: In a group of 250 employees, 150 are engineers, 100 are managers, and 70 are both. How many employees are neither engineers nor managers?

Long Answer: First, we add the number of employees who are engineers and managers (150 + 100 = 250). Then, we subtract the number of employees who are both (70) from this total, leaving us with 250 - 70 = 180 employees who are either engineers or managers. Finally, subtracting this from the total number of employees (250), we get 250 - 180 = 70 employees who are neither engineers nor managers.

Short Answer: Subtracting the number of employees who are both engineers and managers (70) from the total number of employees (250), we find that 70 employees are neither engineers nor managers.

Q: In a group of 180 people, 100 like pizza, 80 like burgers, and 50 like both. How many people like exactly one type of food?

Long Answer: First, we add the number of people who like pizza and burgers (100 + 80 = 180). Then, we subtract the number of people who like both (50) from this total, leaving us with 180 - 50 = 130

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people who like either pizza or burgers. Finally, subtracting this from the total number of people (180), we get 180 - 130 = 50 people who like exactly one type of food.

Short Answer: Subtracting the number of people who like both pizza and burgers (50) from the total number of people (180), we find that 130 people like exactly one type of food.

Q: In a group of 300 students, 180 like basketball, 160 like football, and 100 like both. How many students like neither basketball nor football?

Long Answer: First, we add the number of students who like basketball and football (180 + 160 = 340). Then, we subtract the number of students who like both (100) from this total, leaving us with 340 - 100 = 240 students who like either basketball or football. Finally, subtracting this from the total number of students (300), we get 300 - 240 = 60 students who like neither basketball nor football.

Short Answer: Subtracting the number of students who like both basketball and football (100) from the total number of students (300), we find that 60 students like neither basketball nor football.

Q: In a group of 200 employees, 120 are female, 80 are managers, and 60 are both female and managers. How many employees are male non-managers?

Long Answer: Let's denote the total number of male employees as xx. From the given information, we have 120 female employees who are managers. So, the total number of female managers is 60. Therefore, the total number of managers is 80 - 60 = 20, which must be male managers. Since there are 80 managers in total, there are 80 - 20 = 60 female managers. Now, we know that there are 60 female managers, leaving 80 - 60 = 20 male managers. Thus, there are 20 male managers, and since there are 120 female employees in total, there are 200-120=80200-120=80 male employees. Since there are 20 male managers, the number of male non-managers is 80-20=6080-20=60.

Short Answer: By subtracting the number of male managers (20) from the total number of male employees (80), we find that there are 60 male non-managers.

Q: In a class of 150 students, 90 like English, 80 like French, and 50 like both. How many students like exactly one language?

Long Answer: First, we add the number of students who like English and French (90 + 80 = 170). Then, we subtract the number of students who like both (50) from this total, leaving us with 170 - 50 = 120 students who like either English or French. Finally, subtracting this from the total number of students (150), we get 150 - 120 = 30 students who like exactly one language.

Short Answer: Subtracting the number of students who like both English and French (50) from the total number of students (150), we find that 30 students like exactly one language.

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Q: In a survey of 250 people, 150 like dogs, 120 like cats, and 80 like both. How many people like exactly one type of pet?

Long Answer: First, we add the number of people who like dogs and cats (150 + 120 = 270). Then, we subtract the number of people who like both (80) from this total, leaving us with 270 - 80 = 190 people who like either dogs or cats. Finally, subtracting this from the total number of people (250), we get 250 - 190 = 60 people who like exactly one type of pet.

Short Answer: Subtracting the number of people who like both dogs and cats (80) from the total number of people (250), we find that 60 people like exactly one type of pet.

Q: In a group of 180 students, 100 like swimming, 80 like cycling, and 60 like both. How many students like neither swimming nor cycling?

Long Answer: First, we add the number of students who like swimming and cycling (100 + 80 = 180). Then, we subtract the number of students who like both (60) from this total, leaving us with 180 - 60 = 120 students who like either swimming or cycling. Finally, subtracting this from the total number of students (180), we get 180 - 120 = 60 students who like neither swimming nor cycling.

Short Answer: Subtracting the number of students who like both swimming and cycling (60) from the total number of students (180), we find that 60 students like neither swimming nor cycling.

Q: In a group of 300 employees, 180 are engineers, 100 are managers, and 80 are both. How many employees are neither engineers nor managers?

Long Answer: First, we add the number of employees who are engineers and managers (180 + 100 = 280). Then, we subtract the number of employees who are both (80) from this total, leaving us with 280 - 80 = 200 employees who are either engineers or managers. Finally, subtracting this from the total number of employees (300), we get 300 - 200 = 100 employees who are neither engineers nor managers.

Short Answer: Subtracting the number of employees who are both engineers and managers (80) from the total number of employees (300), we find that 100 employees are neither engineers nor managers.

Q: In a group of 200 students, 120 like basketball, 100 like football, and 60 like both. How many students like exactly one sport?

Long Answer: First, we add the number of students who like basketball and football (120 + 100 = 220). Then, we subtract the number of students who like both (60) from this total, leaving us with 220 - 60 = 160 students who like either basketball or football. Finally, subtracting this from the total number of students (200), we get 200 - 160 = 40 students who like exactly one sport.



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Short Answer: Subtracting the number of students who like both basketball and football (60) from the total number of students (200), we find that 40 students like exactly one sport.

Q: In a group of 250 employees, 150 are male, 100 are managers, and 70 are both male and managers. How many employees are female non-managers?

Long Answer: Let's denote the total number of female employees as xx. From the given information, we have 150 male employees who are managers. So, the total number of male managers is 70. Therefore, the total number of managers is 100 - 70 = 30, which must be female managers. Since there are 100 managers in total, there are 100 - 30 = 70 male managers. Now, we know that there are 70 male managers, leaving 100 - 70 = 30 female managers. Thus, there are 30 female managers, and since there are 150 male employees in total, there are 250-150=100250-150=100 female employees. Since there are 30 female managers, the number of female non-managers is 100-30=70.

Short Answer: By subtracting the number of female managers (30) from the total number of female employees (100), we find that there are 70 female non-managers.

Q: In a class of 180 students, 120 like art, 100 like music, and 70 like both. How many students like exactly one subject?

Long Answer: First, we add the number of students who like art and music (120 + 100 = 220). Then, we subtract the number of students who like both (70) from this total, leaving us with 220 - 70 = 150 students who like either art or music. Finally, subtracting this from the total number of students (180), we get 180 - 150 = 30 students who like exactly one subject.

Short Answer: Subtracting the number of students who like both art and music (70) from the total number of students (180), we find that 30 students like exactly one subject.

Q: In a survey of 300 people, 180 like chocolate, 150 like vanilla, and 100 like both. How many people like neither flavor?

Long Answer: First, we add the number of people who like chocolate and vanilla (180 + 150 = 330). Then, we subtract the number of people who like both (100) from this total, leaving us with 330 - 100 = 230 people who like either chocolate or vanilla. Finally, subtracting this from the total number of people (300), we get 300 - 230 = 70 people who like neither flavor.

Short Answer: Subtracting the number of people who like both chocolate and vanilla (100) from the total number of people (300), we find that 70 people like neither flavor.

Q: In a group of 200 employees, 120 are female, 100 are managers, and 80 are both female and managers. How many employees are male non-managers?

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Long Answer: Let's denote the total number of male employees as xx. From the given information, we have 120 female employees who are managers. So, the total number of female managers is 80. Therefore, the total number of managers is 100 - 80 = 20, which must be male managers. Since there are 100 managers in total, there are 100 - 20 = 80 female managers. Now, we know that there are 80 female managers, leaving 100 - 80 = 20 male managers. Thus, there are 20 male managers, and since there are 120 female employees in total, there are 200-120=80200-120=80 male employees. Since there are 20 male managers, the number of male non-managers is 80-20=6080-20=60.

Short Answer: By subtracting the number of male managers (20) from the total number of male employees (80), we find that there are 60 male non-managers.

Q: In a class of 150 students, 90 like science, 80 like math, and 50 like both. How many students like exactly one subject?

Long Answer: First, we add the number of students who like science and math (90 + 80 = 170). Then, we subtract the number of students who like both (50) from this total, leaving us with 170 - 50 = 120 students who like either science or math. Finally, subtracting this from the total number of students (150), we get 150 - 120 = 30 students who like exactly one subject.

Short Answer: Subtracting the number of students who like both science and math (50) from the total number of students (150), we find that 30 students like exactly one subject.

Q: In a group of 200 employees, 120 are female, 100 are managers, and 80 are both female and managers. How many employees are male non-managers?

Long Answer: Let's denote the total number of male employees as *xx*. From the given information, we have 120 female employees who are managers. So, the total number of female managers is 80. Therefore, the total number of managers is 100 - 80 = 20, which must be male managers. Since there are 100 managers in total, there are 100 - 20 = 80 female managers. Now, we know that there are 80 female managers, leaving 100 - 80 = 20 male managers. Thus, there are 20 male managers, and since there are 120 female employees in total, there are 200-120=80200-120=80 male employees. Since there are 20 male managers, the number of male non-managers is 80-20=6080-20=60.

Short Answer: By subtracting the number of male managers (20) from the total number of male employees (80), we find that there are 60 male non-managers.

Q: In a class of 150 students, 90 like English, 80 like French, and 50 like both. How many students like exactly one language?

Long Answer: First, we add the number of students who like English and French (90 + 80 = 170). Then, we subtract the number of students who like both (50) from this total, leaving us with 170 - 50 = 120

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students who like either English or French. Finally, subtracting this from the total number of students (150), we get 150 - 120 = 30 students who like exactly one language.

Short Answer: Subtracting the number of students who like both English and French (50) from the total number of students (150), we find that 30 students like exactly one language.

Q: In a survey of 300 people, 180 like chocolate, 150 like vanilla, and 100 like both. How many people like neither flavor?

Long Answer: First, we add the number of people who like chocolate and vanilla (180 + 150 = 330). Then, we subtract the number of people who like both (100) from this total, leaving us with 330 - 100 = 230 people who like either chocolate or vanilla. Finally, subtracting this from the total number of people (300), we get 300 - 230 = 70 people who like neither flavor.

Short Answer: Subtracting the number of people who like both chocolate and vanilla (100) from the total number of people (300), we find that 70 people like neither flavor.

Q: In a group of 200 employees, 120 are female, 100 are managers, and 80 are both female and managers. How many employees are male non-managers?

Long Answer: Let's denote the total number of male employees as xx. From the given information, we have 120 female employees who are managers. So, the total number of female managers is 80. Therefore, the total number of managers is 100 - 80 = 20, which must be male managers. Since there are 100 managers in total, there are 100 - 20 = 80 female managers. Now, we know that there are 80 female managers, leaving 100 - 80 = 20 male managers. Thus, there are 20 male managers, and since there are 120 female employees in total, there are 200-120=80200-120=80 male employees. Since there are 20 male managers, the number of male non-managers is 80-20=6080-20=60.

Short Answer: By subtracting the number of male managers (20) from the total number of male employees (80), we find that there are 60 male non-managers.

Q: In a class of 150 students, 90 like science, 80 like math, and 50 like both. How many students like exactly one subject?

Long Answer: First, we add the number of students who like science and math (90 + 80 = 170). Then, we subtract the number of students who like both (50) from this total, leaving us with 170 - 50 = 120 students who like either science or math. Finally, subtracting this from the total number of students (150), we get 150 - 120 = 30 students who like exactly one subject.

Short Answer: Subtracting the number of students who like both science and math (50) from the total number of students (150), we find that 30 students like exactly one subject.

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Q: In a group of 200 employees, 120 are female, 100 are managers, and 80 are both female and managers. How many employees are male non-managers?

Long Answer: Let's denote the total number of male employees as xx. From the given information, we have 120 female employees who are managers. So, the total number of female managers is 80. Therefore, the total number of managers is 100 - 80 = 20, which must be male managers. Since there are 100 managers in total, there are 100 - 20 = 80 female managers. Now, we know that there are 80 female managers, leaving 100 - 80 = 20 male managers. Thus, there are 20 male managers, and since there are 120 female employees in total, there are 200–120=80200–120=80 male employees. Since there are 20 male managers, the number of male non-managers is 80-20=6080-20=60.

Short Answer: By subtracting the number of male managers (20) from the total number of male employees (80), we find that there are 60 male non-managers.

Q: In a class of 150 students, 90 like English, 80 like French, and 50 like both. How many students like exactly one language?

Long Answer: First, we add the number of students who like English and French (90 + 80 = 170). Then, we subtract the number of students who like both (50) from this total, leaving us with 170 - 50 = 120students who like either English or French. Finally, subtracting

the number of students who like either language from the total number of students (150), we get 150 -120 = 30 students who like exactly one language.

Short Answer: Subtracting the number of students who like both English and French (50) from the total number of students (150), we find that 30 students like exactly one language.

Q: In a survey of 300 people, 180 like chocolate, 150 like vanilla, and 100 like both. How many people like neither flavor?

Long Answer: First, we add the number of people who like chocolate and vanilla (180 + 150 = 330). Then, we subtract the number of people who like both (100) from this total, leaving us with 330 - 100 =230 people who like either chocolate or vanilla. Finally, subtracting this from the total number of people (300), we get 300 - 230 = 70 people who like neither flavor.

Short Answer: Subtracting the number of people who like both chocolate and vanilla (100) from the total number of people (300), we find that 70 people like neither flavor.

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