Mathematics lesson 5 – Answer sheet

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GCSE Foundation

Question 1: In the London branch, the survey found that 80% of employees are happy with their job, while 20% are not. Of those who are happy, 70% also feel appreciated by their colleagues. What is the probability that an employee is both happy and feels appreciated by their colleagues?

Solution 1: To find the probability, multiply the probabilities of being happy (80%) and feeling appreciated (70% of the happy employees): $0.80 \times 0.70 = 0.56$. So, the probability that an employee is both happy and feels appreciated is 56%.

Question 2: In the Manchester branch, 60% of employees are happy with their salary, and 40% are not. Among those happy with their salary, 75% are also happy with their workload. What is the probability that an employee is happy with both their salary and workload?

Solution 2: Multiply the probabilities of being happy with salary (60%) and being happy with workload (75% of the happy with salary employees): $0.60 \times 0.75 = 0.45$. So, the probability that an employee is happy with both their salary and workload is 45%.

Question 3: In Glasgow, 70% of employees are happy and 60% of employees who are happy also believe in the company's mission. What is the probability that an employee believes in the company's mission?

Solution 3: Multiply the probability of being happy (70%) by the probability of believing in the company's mission (60% of happy employees): $0.70 \times 0.60 = 0.42$. So, the probability that an employee believes in the company's mission is 42%.

Question 4: In York, 45% of employees reported that they are happy, and 60% of those who are happy also have good relationships with their coworkers. What is the probability that an employee is happy and has good relationships with coworkers?

Solution 4: Multiply the probability of being happy (45%) by the probability of having good relationships with coworkers (60% of happy employees): $0.45 \times 0.60 = 0.27$. So, the probability that an employee is happy and has good relationships with coworkers is 27%.

Question 5: The Newcastle branch looked at opportunities for career growth, 30% of employees are happy, and 50% of those who are happy also have opportunities for career growth. What is the probability that an employee is happy and has opportunities for career growth?

Solution 5: Multiply the probability of being happy (30%) by the probability of having opportunities for career growth (50% of happy employees): $0.30 \times 0.50 = 0.15$. So, the probability that an employee is happy and has opportunities for career growth is 15%.

Question 6: In the Southampton branch, 25% of employees are not happy with their work-life balance, and 70% of those who are not happy with their work-life balance are also not happy overall. What is the probability that an employee is not happy overall and not happy with their work-life balance?

Solution 6: Multiply the probability of not being happy with work-life balance (25%) by the probability of not being happy overall (70% of not happy with work-life balance employees): $0.25 \times 0.70 = 0.175$. So, the probability that an employee is not happy overall and not happy with their work-life balance is 17.5%.

Question 7: Birmingham looked at how happy their staff are - 60% of employees are happy with their workload, and 80% of those who are happy with their workload are also happy overall. What is the probability that an employee is happy overall and happy with their workload?

Solution 7: Multiply the probability of being happy with workload (60%) by the probability of being happy overall (80% of happy with workload employees): $0.60 \times 0.80 = 0.48$. So, the probability that an employee is happy overall and happy with their workload is 48%.

Question 8: Also, at Birmingham, 40% of employees are not happy, and 60% of those who are not happy, feel overwhelmed by their workload. What is the probability that an employee is not happy and feels overwhelmed by their workload?

Solution 8: Multiply the probability of not being happy (40%) by the probability of feeling overwhelmed by workload (60% of not happy employees): $0.40 \times 0.60 = 0.24$. So, the probability that an employee is not happy and feels overwhelmed by their workload is 24%.

Question 9: In the bank overall, 75% of employees are happy, and 90% of those who are happy would recommend their employer to others. What is the probability that an employee is happy and would recommend their employer to others?

Solution 9: Multiply the probability of being happy (75%) by the probability of recommending their employer to others (90% would recommend their employer to others): 0.75×0.90=0.675. So, the probability that an employee is happy and would recommend their employer to others is 67.5%.

Question 10: In the Cardiff branch, 50% of employees are happy with their job, and 80% of those who are happy receive regular recognition for their work. What is the probability that an employee is happy and receives regular recognition?

Solution 10: Multiply the probability of being happy (50%) by the probability of receiving regular recognition (80% of happy employees): 0.50×0.80=0.40. So, the probability that an employee is happy and receives regular recognition for their work is 40%.