

King Fahd University of Petroleum & Minerals
Department of Mathematics & Statistics
STAT-211-Term112
Quiz #3

Name: _____ ID: _____ Section: _____ Serial: _____

The probability that a Takaful company hires an actuarial graduate to join its workforce is 0.67; the probability the company hires an actuarial consultant for professional actuarial help is 0.36; and the probability the company hires an actuarial graduate and hires an actuarial consultant is 0.16.

1. What is the probability that the company need either an actuarial graduate or an actuarial consultant?
2. If the Takaful company already hired an actuarial graduate, what is the probability that it needs to hire an actuarial consultant for professional help?
3. Are the two events, hiring an actuarial graduate and hiring an actuarial consultant, independent? Explain using probability as your justification.
4. Are the two events, hiring an actuarial graduate and hiring an actuarial consultant, mutually exclusive? Explain using probability as your justification.

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The probability that an automobile need an oil change is 0.67; the probability it needs a new oil filter is 0.36; and the probability it needs oil change and the filter need to be change is 0.16.

1. What is the probability that the automobile need either new oil or filter changing?
2. If the oil had to be changed, what is the probability that a new oil filter is needed?
3. Is the two events oil change and filter change are independent? Explain.
4. Is the two events oil change and filter change are mutually exclusive? Explain using probability as your justification.

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The probability of clear weather on a given day in Al Dammam is 0.4 and Al Khubar is 0.3. The probability of clear weather in at least one of the two cities is 0.58

1. Find the probability of clear weather in Al Dammam and Al Khubar on the same day.
2. If the weather on a given day in Al Damman is clear, find the probability that it is not clear in Al Khubar.
3. Is the two events clear weather in Al Dammam and Al Khubar independent? Explain
4. Is the two events clear weather in Al Dammam and Al Khubar mutually exclusive? Explain using probability as your justification.