Probability 2 Numerical Outcomes

1. What is the key feature of a random variable?
	1. There can be several possible values
	2. Each possible value has a known probability
	3. Values can change with different conditions
	4. Values occur completely by chance
2. Which of the following is a discrete random variable?
	1. The number of accidents at a particular road junction each day
	2. The most popular colour of car
	3. The amount of time a customer has to wait in the bank
	4. The height of students in a particular class
3. Which of the following is a continuous random variable?
	1. The number of boys in a family of 3 children
	2. The nationality of students in a particular class
	3. The proportion of students who pass an exam
	4. The suit of a playing card selected at random
4. What does a discrete probability distribution usually look like?
	1. an equation
	2. a table of probabilities
	3. a histogram
	4. a line graph
5. If a discrete random variable, X, can take the values 1, 2, 5, and 10 with equal probability, what is the probability of a value 2?
	1. 0
	2. 0.25
	3. 0.5
	4. 0.75
6. If a discrete random variable, X, can take the values 1, 2, 5, and 10 with equal probability, what is the probability of a value 3?
	1. 0
	2. 0.25
	3. 0.5
	4. 0.75
7. If a discrete random variable, X, can take the values 1, 2, 5, and 10 with equal probability, what is the expected value of X?
	1. 4
	2. 4.5
	3. 5
	4. 3.5
8. What is the equation for the expected value of a discrete random variable x?
	1. ∑P(x)
	2. ∑xP(x)
	3. ∑P(x) / (n-1)
	4. P(x) × ∑x / n
9. If x has the following probability distribution, what is the expected value of x?
1 0.2
2 0.4
3 0.4
Which of the following statements is true?
	1. E(x) = 1.8
	2. E(x) = 2
	3. E(x) = 2.2
	4. E(x) = 2.4
10. If x has the following probability distribution, what is the expected value of x?
1 0.2
2 0.4
3 0.4, what is the expected value of x2?
	1. E(X2) = 4.84
	2. E(X2) = 4
	3. E(X2) = 5.2
	4. E(X2) = 5.4
11. What is the equation for the variance of a random variable x?
	1. E(x)
	2. E(x-μ)
	3. [ E(x-μ) ]2
	4. E[ (x-μ)2 ]
12. According to Chebysheff’s rule, what proportion of observations are generally within 2 standard deviations of the mean?
	1. 25% of them
	2. 50% of them
	3. 75% of them
	4. all of them
13. If a random variable has mean 20 and standard deviation 2, which of the following is the most accurate statement about the probability that it takes a value greater than 26?
	1. it is more than 1/4
	2. it is exactly 1/9
	3. it is about 1/18
	4. it is at least 1/3
14. What is the expected value of the following probability distribution?

3 0.5

4 0.3

5 0.2

* 1. 3.7
	2. 4.3
	3. 4
	4. 3

1. What is the variance of the following probability distribution?

3 0.5

4 0.3

5 0.2

1. 0.5
2. 0.61
3. 2
4. Some other value

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| Question | Answer |
| 1 | D |
| 2 | B |
| 3 | C |
| 4 | B |
| 5 | B |
| 6 | A |
| 7 | B |
| 8 | B |
| 9 | C |
| 10 | D |
| 11 | D |
| 12 | C |
| 13 | C |
| 14 | A |
| 15 | B |