Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Homework 5.1 and 5.2 Review – 10 point formative.

Determine whether the distribution represents a probability distribution. If it does not, state why.



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| --- | --- | --- | --- | --- |
| X | 3 | 6 | 8 | 12 |
| P(X) | 0.3 | 0.5 | 0.7 | -0.8 |



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X | 20 | 30 | 40 | 50 |
| P(X) | 0.05 | 0.35 | 0.4 | 0.2 |

1. Construct a probability distribution for the data and draw a graph for the distribution.

The probabilities that a student is registered for 2, 3, 4, or 5 classes are 0.01, 0.34, 0.62, and 0.03 respectively.

1. From past experience, a company found that in cartons of DVDs, 90% contain no defective DVDs, 5% contain one defective DVD, and 3% contain two defective DVDS, and 2% contain three defective DVDs. Find the mean, variance, and standard deviation for the number of defective DVDs.
2. The number of suits sold per day at a retail store is shown in the table, with the corresponding probabilities. Find the mean, variance, and standard deviation of the distribution.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Number of suits sold X | 19 | 20 | 21 | 22 | 23 |
| Probability P(X) | 0.2 | 0.2 | 0.3 | 0.2 | 0.1 |

1. An insurance company insures a person’s antique coin collection worth $20,000 for an annual premium of $300. If the company figures that the probability of the collection being stolen is 0.002, what will be the company’s expected profit?
2. If a person rolls doubles when she tosses two dice, she wins $5. For the game to be fair, how much should she pay to play the game?
3. A person pays $2 to play a certain game by rolling a single die once. If a 1 or a 2 comes up, the person wins nothing. If, however, the player rolls a 3, 4, 5, or 6, he or she wins the difference between the number rolled and $2. Find the expectation for this game. Is this game fair?