 **How much do you get paid?**

Suppose you got a new job and each day your boss (Mrs. Gallas) draws a slip of paper from a bag to determine your wage for the day. Let the random variable *X* = daily wage ($ per hour).

1. What is your wage for the day? Add your data to the table on the board and complete the table below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *X* | 1 | 5 | 7 | 10 | 15 | 25 |
| Probability |  |  |  |  |  |  |

1. Calculate and interpret the expected value of *X*.

|  |  |  |  |
| --- | --- | --- | --- |
| Value  | Distance from mean | (Distance from mean)2 | Weighted (Distance from the mean)2 |
| 1 |  |  |  |
| 5 |  |  |  |
| 7 |  |  |  |
| 10 |  |  |  |
| 15 |  |  |  |
| 25 |  |  |  |
|  | Total = |  |
|  | SD = |  |

1. Recall from chapter 1 that standard deviation tells us the typical distance from the mean. Complete the table to calculate the standard deviation for the probability distribution.
2. Interpret the standard deviation.
3. Mrs. Gallas decides she would rather assign wages so that employees could get any amount from $10 to $20 and all are equally likely. Draw a graph to represent this probability distribution.
4. What is the probability that an employee makes between $12 and $12.50?

Probability and Continuous Random Variables

Important ideas:

**Check Your Understanding**

Among those who play Minecraft, the amount of time they spend playing per day is approximately Normally distributed with mean *μ* $=$ 150 minutes and standard deviation *σ* = 42.7 minutes. Suppose we choose a Minecraft player at random and let *Y* = the amount of time they spend playing Minecraft (in minutes).

1. What type of variable is *Y*, discrete or continuous? Explain.
2. Interpret the standard deviation.
3. Find $P\left(Y\leq 90\right). $ Interpret this value.
4. Find $P(45\leq Y\leq 90). $Interpret this value.