

Probability

Instructional Focus: Calculate expected values and use them to solve problems

CCSS	4 – Mastery	3 – Proficient	2 - Basic	1 – Below Basic	0 – No Evidence
Representing probability distributions (S.MD.1)	<p>Can extend thinking beyond the standard, including tasks that may involve one of the following:</p> <ul style="list-style-type: none"> • Designing • Connecting • Synthesizing • Applying • Justifying • Critiquing • Analyzing • Creating • Proving 	<p><u>Define a random variable for a quantity of interest</u></p> <p>Assign a numerical value to each event in a sample space</p> <p>Graph the corresponding probability distribution using the same graphical displays as for data distributions.</p>	<p><u>Assign a numerical value to each event in a sample space</u></p> <p>Graph the corresponding probability distribution <u>using the same graphical displays as for data distributions.</u></p>	Graph a given probability distribution	<p>Little evidence of reasoning or application to solve the problem</p> <p>Does not meet the criteria in a level 1</p>
Calculating and interpreting expected values (S.MD.2)		<p><u>Calculate and interpret</u> the expected value of a random variable and use the information to make a decision</p>	Calculate the expected value of a random variable <u>and use the information to make a decision</u>	Calculate the expected value of a random variable	
Developing probability distributions and finding expected values (S.MD.3, S.MD.4)		<p>Develop a probability distribution for a random variable for a sample space of</p> <ul style="list-style-type: none"> • theoretical probabilities • experimental probabilities <p><u>and find the expected value</u></p>	<p><u>Develop</u> a probability distribution for a random variable for a sample space of</p> <ul style="list-style-type: none"> • theoretical probabilities • experimental probabilities 	<p><u>Calculate</u> probabilities for a sample space of</p> <ul style="list-style-type: none"> • theoretical probabilities • experimental probabilities 	

S.MD.1 Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.

S.MD.2 Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.

S.MD.3 Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value

S.MD.4 Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value.