LESSON MAKER PRO

Chance on a Line

Place probabilities from impossible to certain.

GRADE 6 · 6.D.2.1

6.D.2.1 "Represent possible outcomes using a probability continuum from impossible to certain."

NAME _____ DATE _____

THE PROBABILITY CONTINUUM

A probability of 0 means an event is impossible, and a probability of 1 means it is certain. When outcomes are equally likely, divide the number of outcomes you want by the total number of outcomes. Write the probability as a fraction or decimal to find its place between 0 and 1.

WORKED EXAMPLE

A wheel has 8 equal spaces, and 3 are orange. What fraction and decimal show the chance of landing on orange? Which point on the continuum matches?



1. There are 3 orange spaces out of 8 spaces, so the fraction is 3/8.
2. Divide 3 by 8 to get 0.375.
3. Point P is at 0.375 on the continuum.

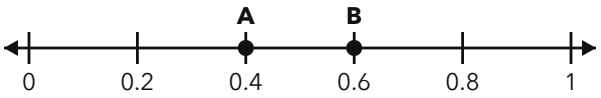
Answer: 3/8 = 0.375, point P

PRACTICE 6 problems

1 A bag has 1 green tile and 4 yellow tiles. You pick one tile without looking. What fraction and decimal show the chance of picking green?

ANSWER _____

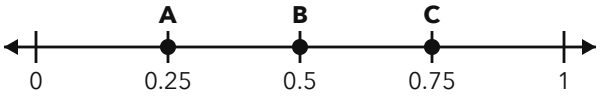
2 Which point shows a probability of 2/5? Is that point closer to impossible or certain?



ANSWER _____

_____

3 Which point is equally close to impossible and certain? Write its probability as a fraction.



ANSWER _____

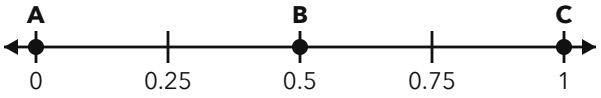
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4 A playlist has 5 songs, and 4 are upbeat. One song plays at random. What fraction and decimal show the chance that it is upbeat?

ANSWER _____

_____

5 Which labeled point shows a certain event?



ANSWER _____

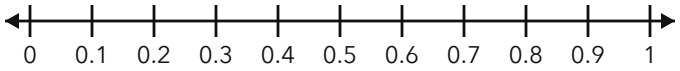
6 You roll a fair number cube marked 1 through 6. What is the decimal probability of rolling a 7? Is this event impossible, between impossible and certain, or certain?

ANSWER _____

_____

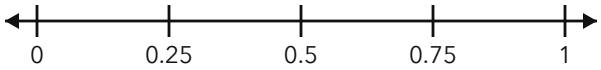
APPLY IT Show your work

1 At a school fair, a prize machine gives out 10 equally likely sticker designs. Two designs glow in the dark. What fraction and decimal show the chance of getting a glow-in-the-dark design? Is that chance closer to impossible or certain?



ANSWER _____

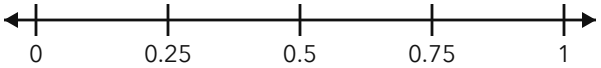
2 A student radio station chooses one of 12 song requests at random. Nine requests are for pop songs. What fraction and decimal show the chance of a pop song? Which tick on the continuum matches?



ANSWER _____

CHALLENGE One step up

Game A gives a bonus on 4 of 6 equally likely outcomes. Game B gives a bonus on 7 of 12 equally likely outcomes. Which game's bonus chance belongs farther right on the probability continuum? Use fractions with a common denominator to explain.



WORK SPACE AND ANSWER

ANSWER KEY

Chance on a Line

GRADE 6 · 6.D.2.1

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A bag has 1 green tile and 4 yellow tiles. You pick one tile without looking. What fraction and decimal show the chance of picking green?	**1/5 = 0.2**
2	Which point shows a probability of 2/5? Is that point closer to impossible or certain?	**Point A, closer to impossible**
3	Which point is equally close to impossible and certain? Write its probability as a fraction.	**Point B, 1/2**
4	A playlist has 5 songs, and 4 are upbeat. One song plays at random. What fraction and decimal show the chance that it is upbeat?	**4/5 = 0.8**
5	Which labeled point shows a certain event?	**Point C**
6	You roll a fair number cube marked 1 through 6. What is the decimal probability of rolling a 7? Is this event impossible, between impossible and certain, or certain?	**0, impossible**

PART 2 · APPLY IT

1. **2/10 = 0.2, closer to impossible** Two of the 10 equally likely designs glow, so the probability is 2/10 = 0.2. On the continuum, 0.2 is closer to 0 than to 1.
2. **9/12 = 3/4 = 0.75, the 0.75 tick** Nine of the 12 requests are for pop songs, so the probability is 9/12. Simplify to 3/4, then convert to 0.75.

CHALLENGE

Game A belongs farther right. Its chance is 4/6 = 8/12, which is greater than Game B's chance of 7/12.

Accept equivalent fractions and decimals. For the challenge, accept any correct comparison that shows Game A has the greater probability.