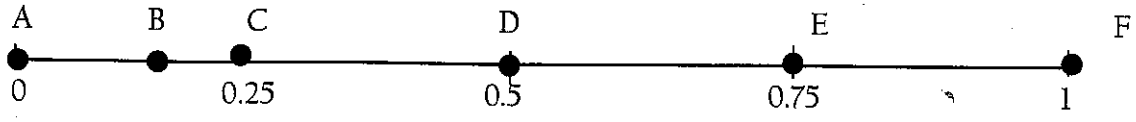
#2 Correct

Name Key (MH4) Your score 26/26 pts.

Probability PRE-TEST ~~(Melott*~~, Herman, Rocco)

7. SP.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring.

Match the letter with the probability of the event.



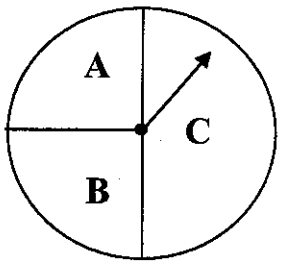
1. Your English teacher had a birthday last year. F
2. You roll a die and get a 1. B
3. You will be in math class on Saturday. A
4. A tossed coin lands on heads. D

1pt 1pt 1pt 1pt

Refer to the spinner below to find the following probabilities. Write it as a fraction NOT PERCENT! REDUCE YOUR ANSWER IF POSSIBLE

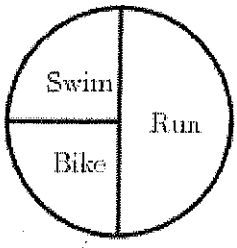
5. P(N) 0/4
6. P (consonant) ~~0/4~~ 3/4
7. P (B) 1/4
8. P (B or C) 3/4
9. P (letter A, B, or C) 4/4 or 1/1

1pt 1pt 1pt 1pt 1pt



7. SP.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.

10. Mrs. Melott is trying to exercise more often. She decides that every morning she will spin the spinner below.



(a) After 150 days, how many times would you expect the spinner to land on Run? Explain your answer.

1pt answer $\frac{1}{2} * 150 = 75$ times

1pt explanation Run takes up $\frac{1}{2}$ of the circle. $\frac{1}{2}$ of 150 = 75

(b) On Swim? Explain your answer.

1pt answer $\frac{1}{4} * 150 = 37.5$ times b/c swimming

1pt explanation takes up $\frac{1}{4}$ of the circle

11. A bag contains 100 marbles, some red and some purple. Suppose a student, without looking, chooses a marble out of the bag, records the color, and then places that marble back in the bag. The student has recorded 9 red marbles and 11 purple marbles. Using these results, predict the number of red marbles in the bag.

9 Red 11 purple

1pt

$9 + 11 = 20$ marbles pulled

$\frac{9}{20} = \frac{x}{100}$

$20x = 9 \cdot 100$

$\frac{20x}{20} = \frac{900}{20}$

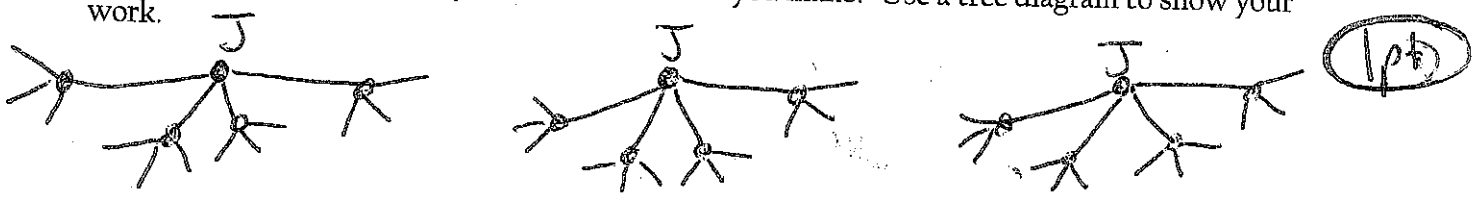
$x = 45$ red marbles

7. SP.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.

a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.

b. Represent for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.

14. You are at A&F buying an outfit for the weekend. You can choose from 3 types of jeans, 4 shirts, and 3 belts. How many different outfits can you make? Use a tree diagram to show your work.



1pt

Add up all the endpoints: 12+12+12=36 outcomes

15. You roll 2 dice. List all of the possible outcomes using SAMPLE SPACE.

	1	2	3	4	5	6
1	1,1	2,1	3,1	4,1	5,1	6,1
2	1,2	2,2	3,2	4,2	5,2	6,2
3	1,3	2,3	3,3	4,3	5,3	6,3
4	1,4	2,4	3,4	4,4	5,4	6,4
5	1,5	2,5	3,5	4,5	5,5	6,5
6	1,6	2,6	3,6	4,6	5,6	6,6

1pt

Use the list from number 15, to find the following probabilities. Show your work either next to the problem or by highlighting/starring items on the chart (previous page). REDUCE YOUR ANSWER IF POSSIBLE

16. P (sum odd) ____ $\frac{18}{36}$ or $\frac{1}{2}$ 1pt

17. P (sum 4) ____ $\frac{3}{36} = \frac{1}{12}$ 1pt

18. P (even number on at least 1 die) ____ 1pt $\frac{27}{36} = \frac{3}{4}$

19. P (doubles) ____ $\frac{6}{36} = \frac{1}{6}$ 1pt

7. SP.7 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.
b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.

12. What is the probability of a coin landing on tails *at least twice* when the coin is flipped three times? List all the outcomes. REDUCE YOUR ANSWER IF POSSIBLE

You are looking for 2 or more T's.

TTT ✓ HTH
HHH
THH
HTT ✓
THT ✓

HHT
TTH

$\frac{4}{8} = \frac{1}{2}$

1 pt

13. Jason is tossing a fair coin. He tosses the coin ten times and it lands on heads eight times. If Jason tosses the coin an eleventh time, what is the probability that it will land on heads?

• $\frac{1}{2}$ b/c each outcome is independent

1 pt

20. 3 students compete in a race. How many ways could Amy, Brenda, and Carla, finish in 1st, 2nd and 3rd place?

ABC → 3 people

$3 \cdot 2 \cdot 1 = 6$ ways

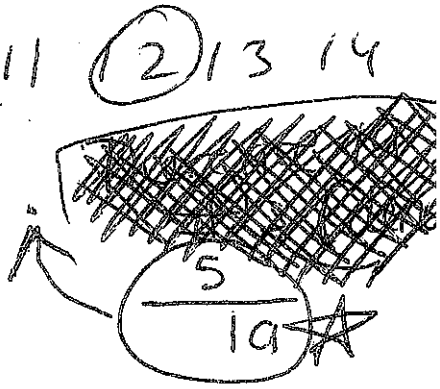
1pt

21. Find the probability of pulling a number divisible by 4 (no remainders) out of numbers 2 through 20. REDUCE YOUR ANSWER IF POSSIBLE

2 3 (4) 5 6 7 (8) 9 10 11 (12) 13 14

15 (16) 17 18 19 (20)

1pt



22. How many ways can you put 7 people in groups of 2?

12
13
14
15
16
17

23 34 45 56 67
24 35 46 57
25 36 47
26 37
27

21 ways

1pt

23. A deck of cards has 4brown, 5 black, 3 pink, 5 grey, and 3 yellow cards. You pick 2 cards from the deck. Cards ARE returned to the deck after they are picked. What is the probability the first card you pick is pink and the second card is black? REDUCE YOUR ANSWER IF POSSIBLE

$\frac{3}{20} * \frac{5}{20} = \frac{15}{400} = \frac{3}{80}$

1pt

24. There are 3 orange, 7 yellow, and 4 violet marbles in a hat. You pick 2 marbles from a hat. Marbles are NOT returned after they have been drawn. What is the probability you pick two orange marbles in a row? REDUCE YOUR ANSWER IF POSSIBLE

$\frac{3}{14} * \frac{2}{13} = \frac{3}{91}$

6
182

1pt

7.SP.8

c. Design and use a simulation to generate frequencies for compound events.

25. If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?

SKIP