Math 1001 Test 3 Practice Problems

1 A group of people were asked if they had run a red light in the last year. 327 responded "yes", and 155 responded "no".

Find the probability that if a person is chosen at random, they responded "yes".

Answer: [＿＿＿＿]

Give your answer as a decimal, rounded to the nearest thousandth.

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[Show Answer] 0.678

2 A card is drawn randomly from a standard 52-card deck. Find the probability of the given event. Write your answers as reduced fractions or whole numbers.

(a) The card drawn is 4

$P(4) =$ [＿＿＿＿]   [Preview]

(b) The card drawn is not 4

$P(\text{not } 4) =$ [＿＿＿＿]   [Preview]

(c) The card drawn is a face card (Jack, Queen, or King)

$P(\text{face card}) =$ [＿＿＿＿]   [Preview]

(d) The card drawn is not a face card.

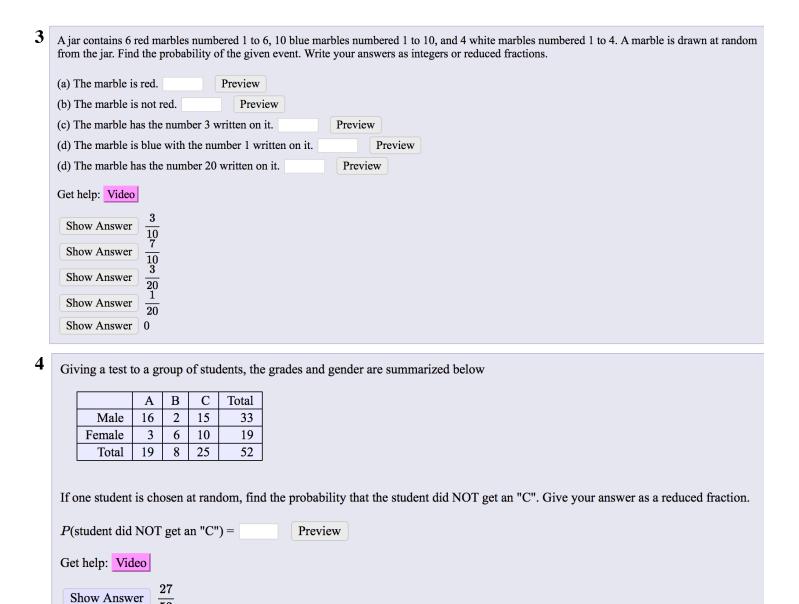$P(\text{not a face card}) =$ [＿＿＿＿]   [Preview]
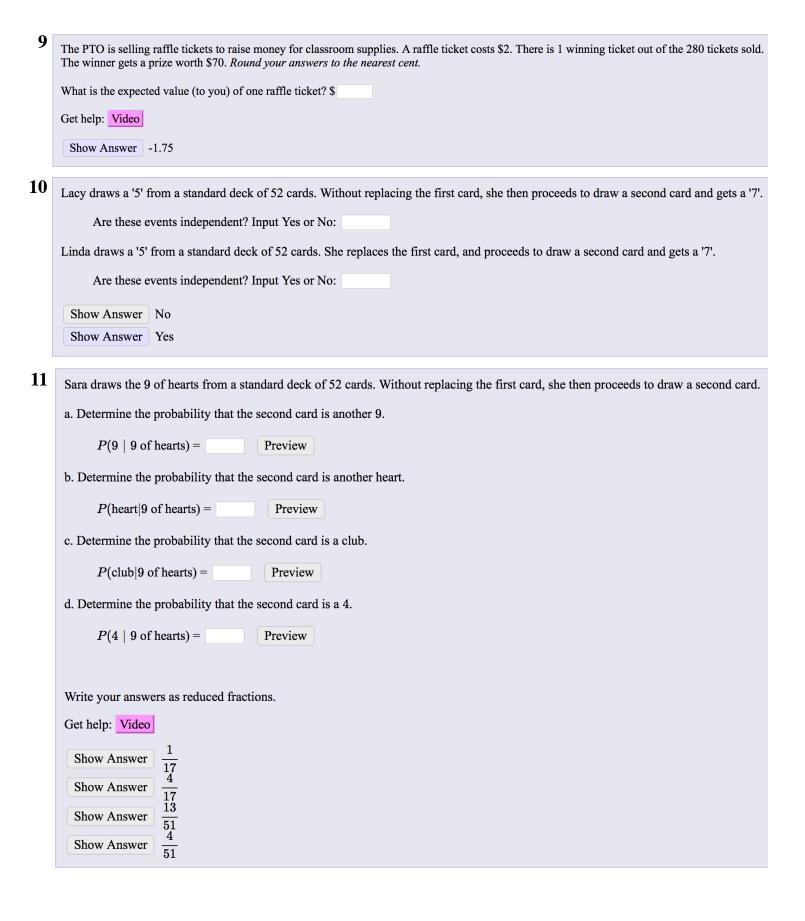
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[Show Answer] $\dfrac{1}{13}$

[Show Answer] $\dfrac{12}{13}$

[Show Answer] $\dfrac{3}{13}$

[Show Answer] $\dfrac{10}{13}$

3

A jar contains 6 red marbles numbered 1 to 6, 10 blue marbles numbered 1 to 10, and 4 white marbles numbered 1 to 4. A marble is drawn at random from the jar. Find the probability of the given event. Write your answers as integers or reduced fractions.

(a) The marble is red. [   ] Preview

(b) The marble is not red. [   ] Preview

(c) The marble has the number 3 written on it. [   ] Preview

(d) The marble is blue with the number 1 written on it. [   ] Preview

(d) The marble has the number 20 written on it. [   ] Preview

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Show Answer $\frac{3}{10}$

Show Answer $\frac{7}{10}$

Show Answer $\frac{3}{20}$

Show Answer $\frac{1}{20}$

Show Answer 0

4

Giving a test to a group of students, the grades and gender are summarized below

	A	B	C	Total
Male	16	2	15	33
Female	3	6	10	19
Total	19	8	25	52

If one student is chosen at random, find the probability that the student did NOT get an "C". Give your answer as a reduced fraction.

P(student did NOT get an "C") = [   ] Preview

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Show Answer $\frac{27}{52}$

5

The probability that event A will occur is $P(A) = 0.56$.

What is the probability (in decimal form) that event A will not occur? $P(\overline{A}) = $ ☐

What are the odds for event A? ☐ to ☐

What are the odds against event A? ☐ to ☐

Simplify your answers.

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Show Answer 0.44

Show Answer 14

Show Answer 11

Show Answer 11

Show Answer 14

6

A bag contains 3 gold marbles, 7 silver marbles, and 24 black marbles. Someone offers to play this game: You randomly select one marble from the bag. If it is gold, you win $4. If it is silver, you win $3. If it is black, you lose $1.

What is your expected value if you play this game?

$ ☐ Preview

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Show Answer 0.26

7

A company estimates that 0.7% of their products will fail after the original warranty period but within 2 years of the purchase, with a replacement cost of $500.

If they offer a 2 year extended warranty for $64, what is the company's expected value of each warranty sold?

$ ☐ Preview

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Show Answer 60.5

8

A 40-year-old man in the U.S. has a 0.241% risk of dying during the next year . An insurance company charges $300 per year for a life-insurance policy that pays a $100,000 death benefit. What is the expected value for the person buying the insurance? Round your answer to the nearest dollar.

Expected Value: $ ☐ for the year

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Show Answer -59

9

The PTO is selling raffle tickets to raise money for classroom supplies. A raffle ticket costs $2. There is 1 winning ticket out of the 280 tickets sold. The winner gets a prize worth $70. *Round your answers to the nearest cent.*

What is the expected value (to you) of one raffle ticket? $ _____

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Show Answer   -1.75

10

Lacy draws a '5' from a standard deck of 52 cards. Without replacing the first card, she then proceeds to draw a second card and gets a '7'.

Are these events independent? Input Yes or No: _____

Linda draws a '5' from a standard deck of 52 cards. She replaces the first card, and proceeds to draw a second card and gets a '7'.

Are these events independent? Input Yes or No: _____

Show Answer   No

Show Answer   Yes

11

Sara draws the 9 of hearts from a standard deck of 52 cards. Without replacing the first card, she then proceeds to draw a second card.

a. Determine the probability that the second card is another 9.

$P(9 \mid 9 \text{ of hearts}) =$ _____   Preview

b. Determine the probability that the second card is another heart.

$P(\text{heart} \mid 9 \text{ of hearts}) =$ _____   Preview

c. Determine the probability that the second card is a club.

$P(\text{club} \mid 9 \text{ of hearts}) =$ _____   Preview

d. Determine the probability that the second card is a 4.

$P(4 \mid 9 \text{ of hearts}) =$ _____   Preview

Write your answers as reduced fractions.

Get help: Video

Show Answer $\dfrac{1}{17}$

Show Answer $\dfrac{4}{17}$

Show Answer $\dfrac{13}{51}$

Show Answer $\dfrac{4}{51}$

12

A test was given to a group of students. The grades and gender are summarized below

	A	B	C	Total
Male	5	12	15	32
Female	3	6	4	13
Total	8	18	19	45

If one student is chosen at random from those who took the test, find the probability that the student got a 'an 'A" GIVEN they are male. Write your answer as a reduced fraction.

P(A | male) = [_____] [Preview]

Get help: [Video]

[Show Answer] $\dfrac{5}{32}$

13

Jenelle draws one from a standard deck of 52 cards.

Determine the probability of drawing either a king or a two?
Write your answer as a reduced fraction.

Answer = [_____] [Preview]

Determine the probability of drawing either a king or a diamond?
Write your answer as a reduced fraction.

Answer = [_____] [Preview]

Get help: [Video]

[Show Answer] $\dfrac{2}{13}$

[Show Answer] $\dfrac{4}{13}$

14

Riley buys a bag of cookies that contains 9 chocolate chip cookies, 7 peanut butter cookies, 8 sugar cookies and 5 oatmeal cookies.

What is the probability that Riley reaches in the bag and randomly selects a chocolate chip cookie from the bag, eats it, then reaches back in the bag and randomly selects an oatmeal cookie? Write your answer as a percent. Round to the nearest tenth of a percent.

Answer: [_____] %

Get help: [Video]

[Show Answer] 5.5

15

Giving a test to a group of students, the grades and gender are summarized below

	A	B	C	Total
Male	13	4	3	20
Female	2	20	17	39
Total	15	24	20	59

If one student is chosen at random, find the probability that the student was female OR got an "C". Write your answer as a reduced fraction.

P(female or "C") = [____] [Preview]

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[Show Answer] $\dfrac{42}{59}$

16

Juan owns 7 pairs of pants, 1 shirts, 5 ties, and 4 jackets. How many different outfits can he wear to school if he must wear one of each item?

He can wear [____] different outfits.

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[Show Answer] 140

17

You are taking a quiz that has 8 multiple-choice questions. If each question has 6 possible answers, how many different ways are there to answer the test?

There are [____] different ways to answer the test.

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[Show Answer] 1679616

18

Standard automobile license plates in a country display 2 numbers, followed by 2 letters, followed by 3 numbers. How many different standard plates are possible in this system? (Assume repetitions of letters and numbers are allowed.)

There are [____] different standard plates possible in this system.

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[Show Answer] 67600000

19

What is the probability that if 4 letters are typed, no letters are repeated? Write your answer in decimal form, rounded to the nearest thousandth.

The probability that no letters are repeated is [____] .

[Show Answer] 0.785

20

In a lottery daily game, a player picks three numbers from 0 to 9 (without repetition). How many different choices does the player have

a) If order matters? [____]

b) If order *does not* matter? [____]

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[Show Answer] 720

[Show Answer] 120