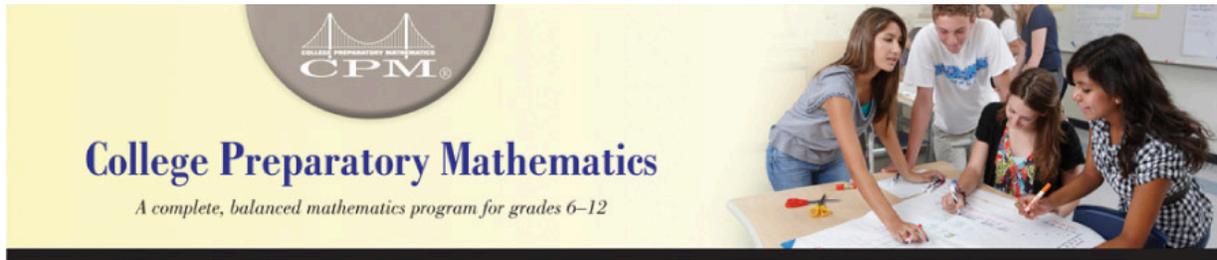


## 1.2.1 Homework Help



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Show Lessons

1-57. Joyce's dad packs her lunch and always packs a yogurt. Joyce knows that there are five yogurts in the refrigerator: one raspberry, two strawberry, one blueberry, and one vanilla. Her dad usually reaches into the refrigerator and randomly grabs a yogurt.

a. Which flavor is she most likely to have in her lunch today?

Hint (a):

The chances of picking a particular flavor of yogurt are greater when there is more than one cup of that flavor in the refrigerator. Can you tell if any one yogurt flavor has a higher probability, or chance, of getting picked by Joyce's dad?

Answer (a):

Strawberry is the flavor most likely to be chosen because there are two cups of this flavor in the refrigerator.

b. What are her chances of finding a vanilla yogurt in her lunch bag?

Hint (b):

The probability of something can be formed by placing the number of times a "successful outcome" is possible over the total number of possible outcomes.

More Help (b):

In this case, the ideal outcome would be picking vanilla yogurt. This is only possible one time and there are five possible yogurt choices, or "outcomes." Can you find the probability of picking vanilla?

1-57b. Since there is only one vanilla out of 5 yogurts the probability of picking vanilla is  $\frac{1}{5}$ .

1-58. Copy the number line below and place the following probabilities on it.

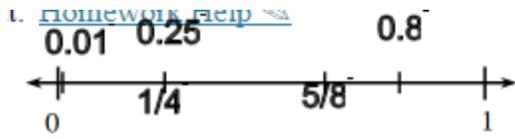


- a. A  $\frac{1}{4}$  chance that you will be the team member that gets supplies today.
- b. A 25% chance of snow tomorrow.
- c. A 0.8 probability of eating vegetables with dinner.
- d.  $P(\text{blue marble}) = \frac{5}{8}$ .
- e. A 0.01 probability that it will be  $85^\circ$  on Saturday.

Hint:

Convert every decimal and percent to a fraction. Review the Math Notes box in Lesson 1.1.5 or review your Toolkit entry for representations of portions.

Use the eTool below to enter mathematical expressions.  
Click the link at right for the full version of the eTool: CC2 1-58 HW eTool



1-59. Write “theoretical” or “experimental” to describe the probabilities for each of the following situations.

a. The chance of getting tails when flipping a coin is  $\frac{1}{2}$ .

Hint (a):

Remember that theoretical probabilities are calculated mathematically based on what is expected while experimental probabilities are based on data collected in experiments.

Did someone do an experiment to make this conclusion? If not, then this probability is theoretical.

More Help (a):

Answer (a):

Theoretical

b. I flipped a coin eight times and got heads six times, so the probability is  $\frac{6}{8}$ .

Hint (b):

Is this probability based on data from an actual test of flipping a coin?

Answer (b):

Experimental

c. My mom packed my lunch three of the past five days, so the probability of my mom packing my lunch is  $\frac{3}{5}$ .

Hint (c):

Ask yourself the same questions as you did in parts (a) and (b).

d. The chance of winning the state lottery is 1 in 98,000,000.

Hint (d):

Did someone actually test the probability of winning the lottery?

e. Based on mathematical models, the chance of rain today is 60%.

Hint (e):

One way to calculate probability without physically testing it is to use a mathematical model

f. Lena got three “hits” in her last seven times at bats, so her chance of getting a hit is  $\frac{3}{7}$ .

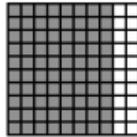
Hint (f):

How did Lena determine the probability that she would get a hit at her next bat?

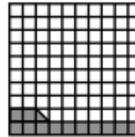
1-60. FRACTIONS AND PERCENTS

Marianna represented several percents as portions of 100 in the pictures below.

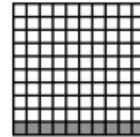
*i.*



*ii.*



*iii.*



a. Write the percent represented in each picture.

Hint (a):

A percent refers to an amount out of 100.

Hint 2 (a):

Count how many shaded squares there are out of 100.

More Help (a):

i. has 80 shaded squares.  
 ii. has 12 and a half shaded squares.  
 iii. has 10 shaded squares.

Answer (a):

i. 80%    ii. 12.5%    iii. Now try this on your own.

b. Write the portion represented in each picture as a fraction in at least two different ways.

Hint (b):

Based on part (a), what is the amount of shaded squares over the total amount of squares?

More Help (b):

Can you reduce these fractions?

**a iii. There are 10 squares out of 100 shaded. Therefore the percent would be 10%.**

**1-60 continued**

**b. i**  $\frac{8}{10}$  divide the 8 and 10 by 2 to get  $\frac{4}{5}$

**b. ii.**  $\frac{12.5}{100}$  divide the top and bottom by 12.5 to get  $\frac{1}{8}$

**b. iii.**  $\frac{10}{100}$  divide the numerator and denominator to get  $\frac{1}{10}$

Show Lessons

1-61. Find the mean and median for the lengths of the jumping frogs' bodies shown below (the length are in centimeters).

20.3, 12.5, 7.6, 13.9, 9.2, 21.7, 7.6, 17.5, 15.6, 14.1

Step 1:

The mean is the average of all the lengths.

Hint:

Add all the lengths of the jumping frogs together and divide that sum by the number of lengths.

Partial Answer:

$$\frac{140}{10} = 14$$

Step 2:

The median is the middle number when the lengths are arranged numerically.

Use the eTool below to enter the data and find the mean and median.  
Click the link at right for the full version of the eTool: CC2 1-61 HW eTool

Hint 2:

7.6, 7.6, 9.2, 12.5, 13.9, 14.1, 15.6, 17.5, 20.3, 21

More Help:

Since there are 2 middle numbers, average the two middle numbers.

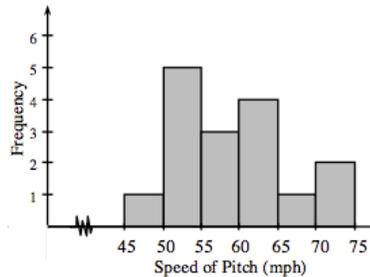
7.6, 7.6, 9.2, 12.5, 13.9, 14.1, 15.6, 17.5, 20.3, 21

Partial Answer:

$$\frac{13.9 + 14.1}{2} = 14$$

To find the median, put numbers in order then find the middle one.

1-62. Craig is practicing his baseball pitching. He kept track of the speed of each of his throws yesterday, and made the histogram at right.



a. Can you tell the speed of Craig's fastest pitch? Explain.

Hint (a):

When looking at the intervals of the fastest pitch speeds, can you tell the exact mph of his pitches or do the bars just tell you how many pitches were thrown in a certain mph range?

b. Between what speeds does Craig usually pitch?

Hint (b):

Examine the graph around the tallest bars to see the range of speed where most of Craig's throws lie. Which bar frequencies add up to more than half of his total throws? Which speed intervals do these bars represent?

Answer (b):

Possible answers:

50-55 mph  
50-65 mph

c. Based on this data, what is the probability that Craig will pitch the ball between 70 and 75 miles per hour?

Hint (c):

How many of Craig's pitches were between 70 and 75 mph? How many pitches did Craig throw in total?

Answer (c):

$$\frac{2}{16} = \frac{1}{8}$$

a. You cannot tell the speed of the fastest pitch. Craig's fastest pitch is in the "bin" 70 to 75. He has two pitches that are between 70 and 75 mph but we don't know the exact speed from this graph.

