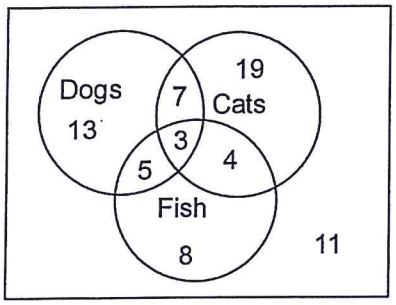
Algebra 2 Bellwork Thursday, April 28, 2016

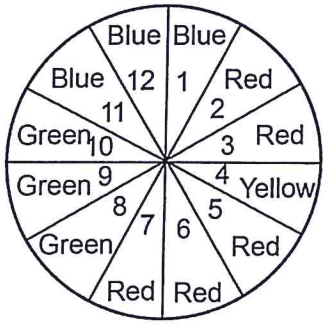
1. Use this Venn Diagram. Give probabilities as fractions without reducing.



a. P(Dogs and Cats) b. P(Fish or Dogs)

c. P(Cats but not Fish) d. P(Not Dogs)

2. You'll spin the spinner once. Find each probability as a fraction.



a. P(Green or Prime)= b. P(Red or Odd)=

c. P(Green and Even)= d. P(Multiple of 4 and odd)=

3. In your desk drawer you have the following pens: 6 blue, 5 red, and 7 black. A student asks to borrow a pen so you randomly grab one and give it to them. A minute later another student asks for a pen and you randomly give them one. Find each probability as a fraction.

a) P(Blue and Red)= b) P(Black and Black)=

4. The password to you remail consists of six characters, four of them must be letters and two of them must be digits from 0 to 9. If letters can repeat and numbers can't, find the possible number of passwords. Letters are not case sensitive.

5. You are playing fantasy football with some friends. You have to create a team by choosing from a list of 14 Quarterbacks, 20 Running Backs, and 15 Receivers.

a) Find the number of possible fantasy teams you could create if you must pick 1 Quarterback, 3 Running Backs, and 2 Receivers.

b) For a back-up roster you can pick 2 Receivers or 2 Running Backs. How many back-up rosters could you make?

Yes, there's a back!

6. The probability that I go to Hawaii on vacation is $\frac{3}{13}$. The probability that while on vacation I get a sunburn is $\frac{3}{4}$. Find the following probability as a percent to the nearest tenth.

P(go to Hawaii or get sunburned)=

7. Use this set of data: $12, 16, 8, 35, 16, 40, 8, 37, 12, 19, 14, 2$
Find the Mean, Median, Mode, and Range. Round to the nearest hundredth when neccessary.

8. Use this set of data: $44, 47, 53, 99, 78, 33, 58, 60, 40, 51$
Which set of data has more variation, the data set in #7 or the data set in this problem (#8)? Give a reason for your answer.

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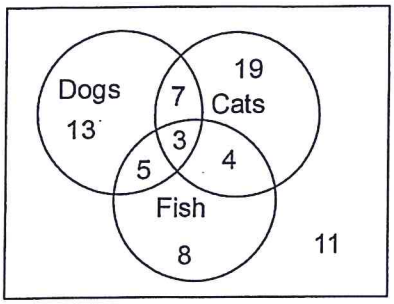
Answers

1. Use this Venn Diagram. Give probabilities as fractions without reducing.

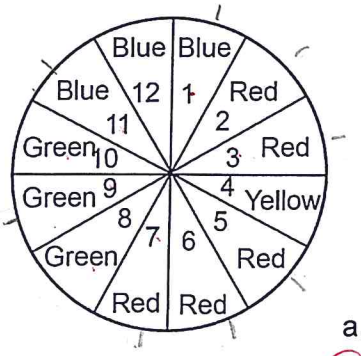
TOTAL = 70



a. P(Dogs and Cats) $\frac{10}{70}$ b. P(Fish or Dogs) $\frac{40}{70}$

c. P(Cats but not Fish) $\frac{26}{70}$ d. P(Not Dogs) $\frac{42}{70}$

2. You'll spin the spinner once. Find each probability as a fraction.



a. P(Green or Prime)= $\frac{8}{12}$ b. P(Red or Odd)= $\frac{8}{12}$

c. P(Green and Even)= $\frac{2}{12}$ d. P(Multiple of 4 and odd)= $\frac{0}{12}$

3. In your desk drawer you have the following pens: 6 blue, 5 red, and 7 black. A student asks to borrow a pen so you randomly grab one and give it to them. A minute later another student asks for a pen and you randomly give them one. Find each probability as a fraction.

a) P(Blue and Red)= $\frac{6}{18} \cdot \frac{5}{17} = \frac{30}{306}$ b) P(Black and Black)= $\frac{7}{18} \cdot \frac{6}{17} = \frac{42}{306}$

4. The password to you remail consists of six characters, four of them must be letters and two of them must be digits from 0 to 9. If letters can repeat and numbers can't, find the possible number of passwords. Letters are not case sensitive.

$26 \cdot 26 \cdot 26 \cdot 26 \cdot 10 \cdot 9 = 41,127,840$

5. You are playing fantasy football with some friends. You have to create a team by choosing from a list of 14 Quarterbacks, 20 Running Backs, and 15 Receivers.

a) Find the number of possible fantasy teams you could create if you must pick 1 Quarterback, 3 Running Backs, and 2 Receivers.

1,675,800 $(14)\left(_{20}C_3\right)\left(_{15}C_2\right) = (14)(1140)(105)$

b) For a back-up roster you can pick 2 Receivers or 2 Running Backs. How many back-up rosters could you make?

$_{15}C_2 + {}_{20}C_2 = 105 + 190 = 295$

Yes, there's a back!

6. The probability that I go to Hawaii on vacation is $\frac{3}{13}$. The probability that while on vacation I get a sunburn is $\frac{3}{4}$. Find the following probability as a percent to the nearest tenth.

P(go to Hawaii or get sunburned)=

$$\frac{3}{13} + \frac{3}{4} - \frac{3}{13} \cdot \frac{3}{4} =$$

80.8%

7. Use this set of data: 12, 16, 8, 35, 16, 40, 8, 37, 12, 19, 14, 2
Find the Mean, Median, Mode, and Range. Round to the nearest hundredth when neccessary.

Range = 38
Med = 15
$\bar{x}$ = 18.25 Mode = 8, 12, 16

8. Use this set of data: 44, 47, 53, 99, 78, 33, 58, 60, 40, 51
Which set of data has more variation, the data set in #7 or the data set in this problem (#8)? Give a reason for your answer.

#7 σ = 11.85

#8 σ = 16.43

Set From #8 has more variation because it has a larger standard deviation