$A \cup B$ : everything in both
or

$A \cap B$ what's in common
and

$\sim P$

$P^c$

$A \cap A^c$

$\emptyset$

$\{\ \}$

empty set

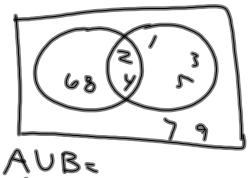
Mar 26-7:39 AM

④ $S = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$

$A = \{2, 4, 6, 8\}$

$B = \{1, 2, 3, 4, 5\}$

D. $B^c = \{6, 7, 8, 9\}$




$A \cup B =$

$A \cap B = \{2, 4\}$

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11.2 Probability basic
pg. 6

Probability: the chance of something happening

likelihood that an event will occur.

0% to 100%

0 to 1 $\frac{1}{7}$

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events are:

Independent. If the occurrence of one event does not change the prob of another.

dependent: If the occurrence of one event does change the prob of another.

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Prob = $\frac{\#\text{ of possible ways to get what ya want}}{\text{total outcomes}}$

$P(4) = \frac{1}{6}$

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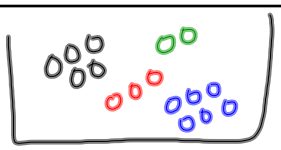

$P(\text{Blue}) = \frac{6 \text{ blue marbles}}{16 \text{ total marbles}}$

reduced fraction $\frac{3}{8}$

$P(\text{Blue, Red})$

event A = Blue

event B = Red

$P(A) = \frac{3}{8}$ $P(B) =$

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W/ Replacement: put it back in

W/o Replacement: keep it

P(Blue, Red) w/replace

$P(A)=\frac{3}{8}$ $P(B)=\frac{3}{16}$ $\frac{3}{8}\cdot\frac{3}{16}=\boxed{\frac{9}{128}}$

P(Blue, Red) w/o Replace

$P(A)=\frac{3}{8}$ $P(B)=\frac{3}{15}=\frac{1}{5}$ $\frac{3}{8}\cdot\frac{1}{5}=\boxed{\frac{3}{40}}$

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$P(A)\cap P(B)=P(A)\cdot P(B)$

* events are independent
And - multiply

Ex. 1 P(heads and 5)

A = flipping a head on a coin

B = rolling a 5 on a die

$P(A)=\frac{1}{2}$ $P(B)=\frac{1}{6}$

$P(A)\cdot P(B)=\frac{1}{2}\cdot\frac{1}{6}=\boxed{\frac{1}{12}}$

Mar 26-8:08 AM

Deck of cards

P(Heart or Queen)

A = Heart = $\frac{13}{52}$

B = Queen $\frac{4}{52}$

* $A\cup B=P(A)+P(B)-P(A\cap B)$

$\frac{13}{52}+\frac{4}{52}-\frac{1}{52}=\frac{16}{52}$ (1 both)

reduce $\boxed{\frac{4}{13}}$

OR add subtract both

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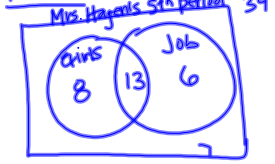
Example 2

Mrs. Hayes 5th period 34




8 girls, don't work

13 girls, do work

21 girls

6 boys, do work

19 work

7 boys, don't work

$P(girl)=\frac{21}{34}$

$P(girl\cap works)=\frac{13}{34}$

$P(boy\cup work)=\frac{26}{34}=\frac{13}{17}$

$\frac{13}{34}+\frac{19}{34}-\frac{6}{34}=\frac{26}{34}$

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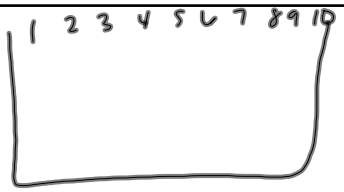
11.2




(3) P(Even U Shaded)

$\frac{7}{10}$

$\frac{4}{10}+\frac{4}{10}-\frac{1}{10}=\frac{7}{10}$

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B) $\frac{8}{10}$ $\frac{4}{5}$

$\frac{6}{10}+\frac{5}{10}-\frac{3}{10}=\frac{8}{10}$ $\boxed{\frac{4}{5}}$

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(Even ∩ shaded)

$\frac{1}{10}$

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T. $\frac{1}{5} \cdot \frac{1}{3} = \boxed{\frac{1}{15}}$

A. $\frac{3}{5} \cdot \frac{1}{3} = \frac{3}{15} = \boxed{\frac{1}{5}}$

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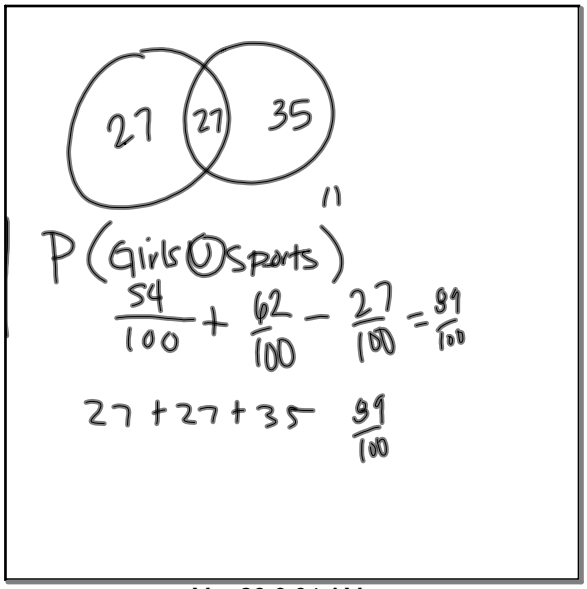


11

P(Girls ∪ Sports)

$\frac{54}{100} + \frac{62}{100} - \frac{27}{100} = \frac{89}{100}$

$27 + 27 + 35 - \frac{89}{100}$

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