

Module 9 HW is due today, make
sure it is completed...

We are working on our SM2 Final:
Study Guide today.

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Determining the independence of events can sometimes be done by becoming familiar with the context in which the events occur and the nature of the events. There are also some ways of determining independence of events based on equivalent probabilities.

- Two events, A and B, are independent if $P(A \text{ and } B) = P(A) \cdot P(B)$
- Additionally, two events, A and B, are independent if $P(A|B) = \frac{P(A \text{ and } B)}{P(B)} = P(A)$

Use these two ways of determining independent events to determine independence in the problems below and answer the questions.

7. $P(A \text{ and } B) = \frac{3}{5}$
 $P(A) = \frac{1}{2}$
 $P(B) = \frac{3}{10}$

8. $P(A) = \frac{1}{5}$
 $P(A \text{ and } B) = \frac{1}{6}$
 $P(B) = \frac{1}{3}$

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Not independent

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	Survived	Did not survive	Total
Men	146	659	805
Women	296	106	402
Total	442	765	1207

11. $P(w) =$

12. $P(s) =$

13. $P(s|w) =$

14. $P(w \text{ or } s) =$

15. $P(w \text{ or } m) =$

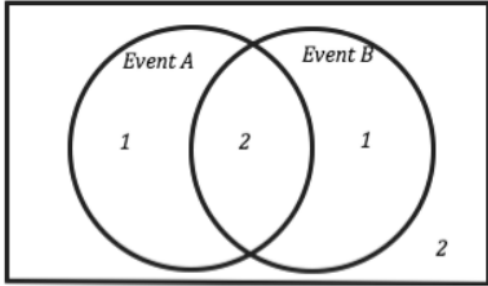
16. $P(ns|w) =$

17. $P(m \cap ns) = \frac{659}{1207} = 0.54 = 54\%$

8.50 x 11.00 in

In each of the Venn Diagrams the number of outcomes for each event are given, use the provided information to determine the conditional probabilities or independence. The numbers in the Venn Diagram indicate the number of outcomes in that part of the sample space.

5.



a. How many total outcomes are possible? *6 outcomes*

b. $P(A) = \frac{3}{6} = 0.5 = 50\%$

c. $P(B) = \frac{3}{6} = 0.5 = 50\%$

d. $P(A \cap B) = \frac{2}{6} = \frac{1}{3} = 33.3\%$

e. $P(A|B) = \frac{2}{3} = 66.7\%$

f. Are events A and B independent events? Why or why not?

$P(A|B) = P(A)$ and $P(B|A) = P(B)$

$\frac{2}{3} \neq \frac{3}{6}$

Not independent.

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Units 3-4 & 5-6 Review

6

SOH - CAH - TOA

$\sin \theta = \frac{\text{opp}}{\text{hyp}}$ $\cos \theta = \frac{\text{adj}}{\text{hyp}}$ $\tan \theta = \frac{\text{opp}}{\text{adj}}$

$$\sin \theta = \frac{3}{5}$$
$$\cancel{\sin^{-1}(\sin \theta)} = \sin^{-1}\left(\frac{3}{5}\right)$$
$$\theta = \sin^{-1}\left(\frac{3}{5}\right)$$
$$\theta = 36.9^\circ$$