

Questions on 9.5 Set, 60 or 9.6
Set? Probability Quiz 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. $P(A) = \frac{1}{5}$
 $P(A \text{ and } B) = \frac{1}{6}$
 $P(B) = \frac{1}{3}$

Handwritten notes for problem 7:
 $P(A \text{ and } B) = P(A) \cdot P(B)$
 $\frac{3}{5} \stackrel{?}{=} \frac{1}{2} \cdot \frac{3}{10}$
 $\frac{3}{5} \neq \frac{3}{20}$
 ~~$P(A|B) = \frac{P(A \text{ and } B)}{P(B)} = P(A)$~~
 $\frac{\frac{3}{5}}{\frac{3}{10}} = \frac{2}{1} \stackrel{?}{=} \frac{1}{2}$

Handwritten notes for problem 8:
 $\frac{1}{5} \cdot \frac{1}{3} = \frac{1}{15} \neq \frac{1}{6}$
 $\frac{1}{5} \neq \frac{1}{6}$

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Handwritten calculations:
 $\frac{1}{5} \cdot \frac{1}{3} = \frac{1}{15} \neq \frac{1}{6}$
 $\frac{1}{5} \neq \frac{1}{6}$

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The following data represents the number of men and women passengers aboard the titanic and whether or not they survived.

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

11. $P(w) =$

12. $P(s) =$

13. $P(s|w) = \frac{296}{402} = 0.7363 = 73.6\%$

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

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

16. $P(ns|w) =$

17. $P(m \cap ns) =$

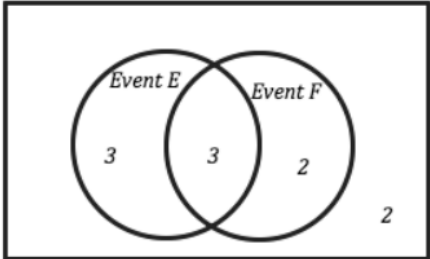
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a. How many total outcomes are possible?
 $3+3+2+2 = 10$

b. $P(E) = \frac{6}{10} = 0.6 = 60\%$

c. $P(F) = \frac{5}{10} = 0.5 = 50\%$

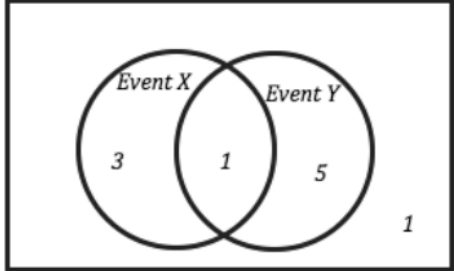
d. $P(E \cap F) = \frac{3}{10} = 0.3 = 30\%$

e. $P(E|F) = \frac{3}{5} = 0.6 = 60\%$

$P(F|E) = P(F)$
 $\frac{3}{6} = \frac{5}{10} \checkmark$

f. Are events E and F independent events? Why or why not?
Independent events: $P(E|F) = P(E)$
 $\frac{3}{5} = \frac{6}{10} \checkmark$

7.



a. How many total outcomes are possible?

b. $P(X) =$

c. $P(Y) =$

d. $P(X \cap Y) =$

e. $P(X|Y) =$

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Units 1-2 Review

Standard Form: $ax^2 + bx + c$
 Vertex Form: $a(x-h)^2 + k$
 Factored Form: $(x-e)(x-f)$

Quadratic
 Formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

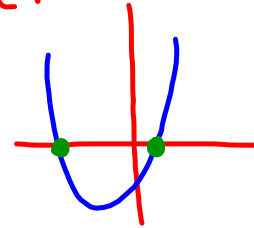
$a=1$ $b=0$ $c=-100$

① $m^2 + 0m - 100$
 $(m+10)(m-10) = 0$
 $m = -10, 10$

$$x = \frac{-0 \pm \sqrt{0^2 - 4 \cdot 1 \cdot -100}}{2 \cdot 1}$$

$$= \frac{\pm \sqrt{400}}{2} = \pm \frac{20}{2} = \pm 10$$

SOLVE -ing
 Quadratic
 Functions:
 Find x-intercepts
 where $y=0$ and
 the quadratic
 crosses x-axis



100	+
-10 · 10	-10 + 10 = 0
-2 · 50	-2 + 50 = 48

Homework

Units 1-2 Review WKS