

## Stats for Business Practice Quiz 2

**DO NOT TURN QUIZ OVER !!**

(until asked to do so)

- **Quiz Format:**

- OPEN NOTES (Okay to use the Notebook)
- Working together with other students OKAY (Or work by yourself)
- **But TAs and Prof. Whitten cannot assist!**

- You have **12** minutes for quiz. **(We review afterward)**

### Potentially Useful Formulas:

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

$$P(A \text{ and } B) = P(A) \cdot P(B|A)$$

$$P(B|A) = P(A \text{ and } B)/P(A)$$

DIRECTIONS: You have 12 minutes to complete the quiz.

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A realtor has contracts to sell 36 homes. The realtor has five *master keys*, each of which can unlock the front door of some of the 36 homes, but not others. In fact, the front door of any particular home among these 36 homes is unlocked by exactly two of the master keys (and the other three keys won't work for that home.)

(Carry calculations to at least four decimal places. Circle the single best answer.)

1. If the agent randomly selects two of the five keys, what's the probability that at least one of the selected keys will unlock the front door of the particular home at 1234 Mulberry Lane?  
(a) 0.125   (b) 0.400   (c) 0.500   (d) 0.700  
(e) None of the answers is correct to the third decimal place
2. If the agent repeats this same practice independently for three different homes (she replaces the keys previously chosen each time), what's the probability that she will be able to unlock the front doors of two of the three homes?  
(a) 0.189   (b) 0.375   (c) 0.441   (d) 0.811  
(e) None of the answers is correct to the third decimal place



## Macbride Quiz Announcements

- I post **Practice Quiz Solution** on the **Stats Website** after each quiz for easy review. (See [Macbride Quiz page](#).)
- **Self-Grading!** Now compare your answers to the solution that I show!
- Spend the last few minutes of class self-grading and comparing answers. **Speak with TAs!**

DIRECTIONS: You have 12 minutes to complete the quiz.

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1. **Master keys:** G1, G2, B1, B2, B3

Key 1	Key 2	Prob
G1	G2	1/10
G1	B1	
G1	B2	
G1	B3	
G2	B1	
G2	B2	
G2	B3	
B1	B2	
B1	B3	
B2	B3	

$P(\text{Unlock}) = 7/10 = \boxed{0.70}$

2.

House 1	House 2	House 3	Prob
Yes	Yes	No	$(0.70)(0.70)(0.30) = 0.147$
Yes	No	Yes	$(0.70)(0.30)(0.70) = 0.147$
No	Yes	Yes	$(0.30)(0.70)(0.70) = 0.147$
			<b>0.441</b>

$P(\text{Open 2 out of 3 homes})$