

Exam 1 Practice Problems with Answers

1. The police were having a hard time with a case. They caught three people at the scene of a store robbery. According to all evidence, there had been only two perpetrators: one main burglar and an accomplice. The third person was just an innocent bystander. Under questioning, the main burglar would obviously tell a lie, the innocent person would tell the truth, and the accomplice might lie or might tell the truth. From their statements below, determine which person was which.

- (a) Louise: I was the accomplice.
- (b) Manny: Rick is the main burglar.
- (c) Rick: Louise is the accomplice.

Answer: Louise is the accomplice, Manny is the burglar, Rick is the bystander.

2. I paid 123.50 for my calculator. The price included a 7.8% sales tax. What was the price of the calculator without the tax?

Answer: The original price was \$114.56

3. I have 18 pairs of socks - 12 pairs are white and 6 pairs are black. The socks aren't paired up so I have 24 white socks and 12 black socks all mixed together in my drawer.

- (a) What percentage of my socks are white? **Answer: 66.67%**
- (b) If I reach in and grab one sock, what is the probability that it is black? **Answer: 0.33**
- (c) If I reach in and grab two socks at random (without replacement), what is the probability they will both be white? **Answer: 0.44**

4. The Pizza Pi restaurant offers 12 different pizza toppings.

- (a) How many different pizzas can be made? **Answer: $2^{12} = 4096$**
- (b) You want to pick 5 different toppings for your pizza. How many ways can you do this? **Answer: 792**

5. You roll a die and flip a coin. What is the probability you get

- (a) A heads and a 6? **Answer: 0.083**
- (b) A heads or a 5? **Answer: 0.58**

6. Just last week, Stacey's nieces and nephews met up to go to the cinema to see the latest blockbuster.

From the clues below, can you determine the order in which they stood in the ticket queue?¹

¹taken from ©Kevin Stone

Sam was in front of Sarah. Stuart was behind Sandra and Sally. Sally was in front of Sharon and Steve. Sabrina was behind Stuart, Simon and Steve. Steve was in front of Sabrina, Simon and Shane. Shane was behind Simon, Sharon and Sabrina. Sandra was in front of Sarah. Simon was in front of Sam, Stuart and Sandra. Sarah was in front of Sharon. Sabrina was in front of Sam and Shane. Sarah was behind Sandra, Sally and Sabrina. Stuart was in front of Sarah. Simon was behind Sally.

Answer: (Front to Back) Sally, Steve, Simon, Sandra, Stuart, Sabrina, Sam, Sarah, Sharon, Shane

7. An elevator containing five people can stop at any of seven floors. What is the probability that at least 2 people get off on the same floor? **Answer: 0.85**