Percent Change and Compound Interest

1. What is 120 increased by 25%?
- **A.** 130
- **B.** 135
- **C.** 140
- **D.** 145
- **E.** 150

2. What is 120 decreased by 25%?
- **A.** 80
- **B.** 85
- **C.** 90
- **D.** 95
- **E.** 100

3. 120 is a 25% decrease from what number?
- **A.** 156
- **B.** 160
- **C.** 165
- **D.** 170
- **E.** 182

4. 120 is a 25% increase from what number?
- **A.** 89
- **B.** 92
- **C.** 96
- **D.** 101
- **E.** 186

5. 207 is what percent decrease from 300?
- **A.** 31%
- **B.** 38%
- **C.** 44%
- **D.** 54%
- **E.** 69%

6. 444 is what percent increase from 300?
- **A.** 43%
- **B.** 48%
- **C.** 52%
- **D.** 55%
- **E.** 60%

7. The brightness of a distant star decreases by 20% every 20 years. If its initial brightness was measured as 4522 lumens, which of the following is closest to its brightness after 280 years?

A. 135 lumens
B. 199 lumens
C. 272 lumens
D. 317 lumens
E. 503 lumens

8. John invests $200.00 in a savings account that is compounded annually at 4.5%. Which of the following is closest to the amount that will be in the account after 4 years?

A. $218.00
B. $223.64
C. $230.95
D. $234.04
E. $238.50

9. An environmentalist group observes that a thriving herd of zebras increases in population by 15% every 6 months. Given that the initial population of zebras is 2,000, which of the following would be closest to the number of zebras in the herd after 5 years?

A. 4,000
B. 6,000
C. 8,000
D. 11,500
E. 23,000

10. Tom has fundraised $500.00 to buy blankets for the local homeless shelter. Each blanket has a price of $9.00, and Tom will pay a sales tax of 6% of the total price of the blankets. What is the maximum number of blankets Tom can buy?

A. 50
B. 51
C. 52
D. 53
E. 54

11. Lindsey purchased a used motorcycle for a discounted rate of 40% less than the $3,000 list price. She also paid tax on the motorcycle equal to 7% of the discounted price. What is the total amount Lindsey paid for the motorcycle?

A. $1,800
B. $1,872
C. $1,926
D. $1,995
E. $2,073

12. The population of a particular city is modeled by the equation $P = 340{,}000(1.12)^t$ where t is the number of years after June 1st, 2016. Based on this model, which of the following numbers is closest to the population of the city on June 1, 2020?

A. 380,000
B. 535,000
C. 672,000
D. 842,000
E. 1,523,000

13. A food truck operator's costs are 22% higher this year than they had been when the price of one cheeseburger from his truck was $5.50. If the cheeseburger price had increased by the same percent as the operator's costs, what would the cheeseburger price be this year?

A. $6.00
B. $6.24
C. $6.55
D. $6.71
E. $6.99

14. A jet-ski rental company is currently offering a special discount rate to customers who agree to rent a jet-ski for 4 hours or more. Per this special rate, the first hour will be free, and for each hour after the first, the customers pay the normal hourly rate, \$60/hour. Danielle and her friends rent a jet-ski for 10 hours at this special rate. The total amount they will pay at the current special rate represents what percent decrease from the regular rental rate for 10 hours?

A. 9.00%
B. 9.35%
C. 9.67%
D. 10.00%
E. 10.33%

15. Seven years ago, Laney invested \$1,500 at 4.5% interest compounded monthly. Which of the following expressions represents the value of the investment today?

A. $\$1{,}500e^{0.45}$
B. $\$1{,}500(1.045)^{7}$
C. $\$1{,}500(1.045)^{28}$
D. $\$1{,}500(1.00375)^{84}$
E. $\$1{,}500 + \$2{,}000(0.045)(7)$

NOTE: #15 is an example of monthly compounded interest and is not explained above. Give it your best shot, and then ask your tutor for clarification!