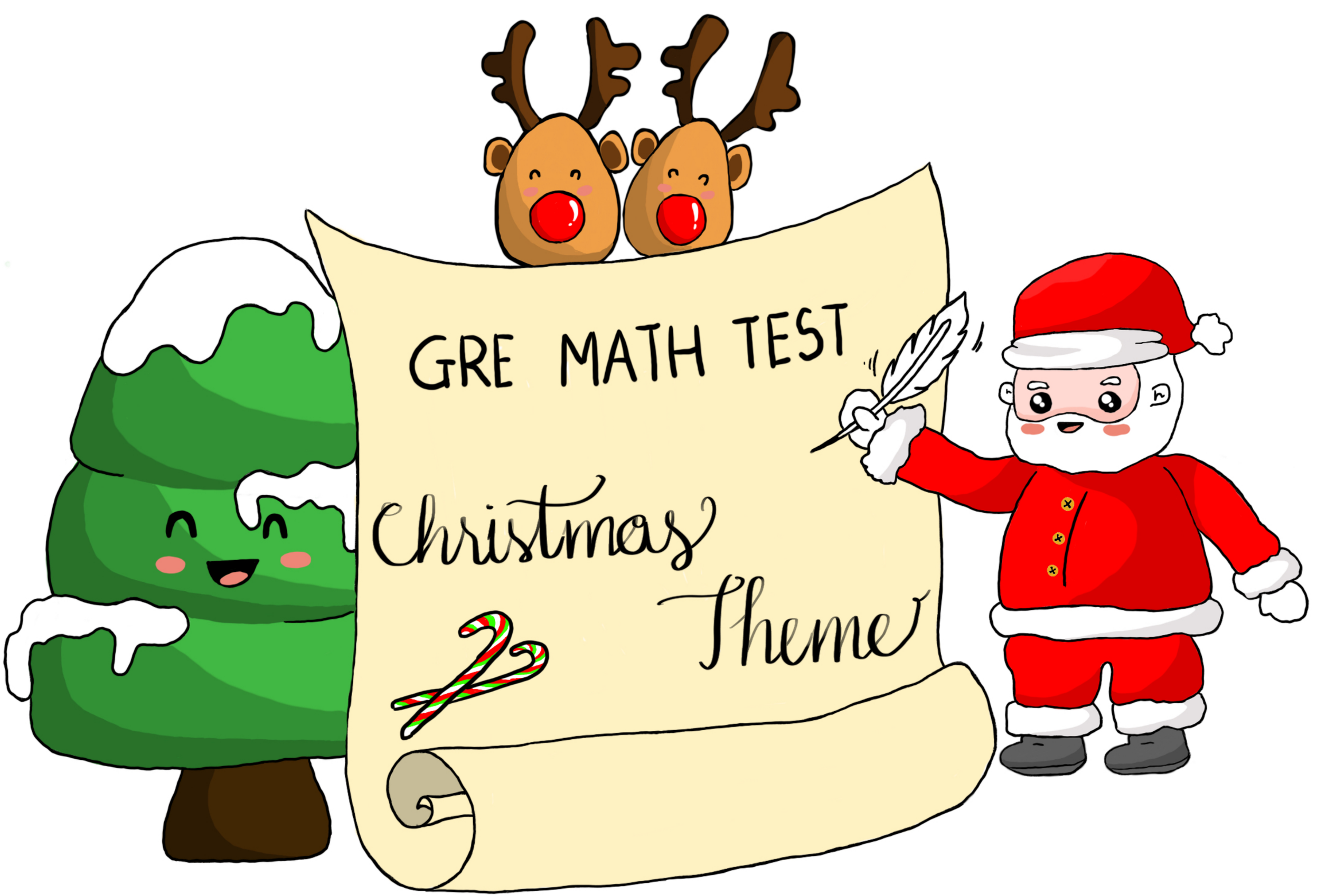
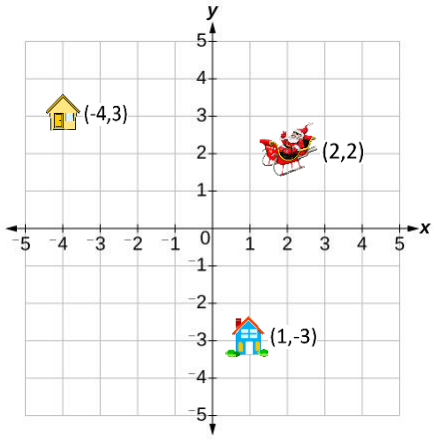

GRE MATH TEST
Christmas
Theme




1.

| Quantity A | Quantity B |
|---|---|
| Distance from Santa to the Yellow House. | Distance from Santa to the Blue House. |

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In Santa's workshop, 3 elves working together can produce 45 presents in 3 hours.

2.

| Quantity A | Quantity B |
|---|---|
| The number of presents 6 elves working together can produce in 4 hours. | The number of presents 8 elves working together can produce in 3 hours. |

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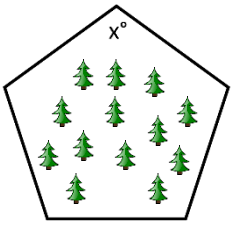


The elves are building a fence in the shape of a regular pentagon to enclose Mrs. Claus' Christmas trees.

3.

| Quantity A | Quantity B |
|---|---|
| x | 110 |

$$(x ? y) = \frac{x^2 + y^2}{y}$$

4.

| Quantity A | Quantity B |
|---|---|
| $(2 ? 4) ? 4$ | $4 ? (2 ? 4)$ |

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Santa visited an orphanage housing 13 children. He brought with him a total of *n* presents. Ensuring that each child received an equal number of presents, Santa returned to the North Pole with 11 undistributed presents.

5.

| Quantity A | Quantity B |
|---|---|
| The number of presents Santa would have come home with if the orphanage had 1 more child. | The number of presents Santa would have come home with if the orphanage had 2 more children. |

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Cookies eaten each night by Santa = {4,6,8, *x*, 9, 11,13}

$0 < x < 5$

6.

| Quantity A | Quantity B |
|---|---|
| Mean of cookies eaten | Median of cookies eaten |

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Kris Kringle invested $1,000 at 8% interest in an account that compounds twice a year. Two years later, he withdrew and spent ALL of the money on toys that cost $5 each for the local toy drive.

7.

| Quantity A | Quantity B |
|---|---|
| Number of toys John was able to purchase | 233 |

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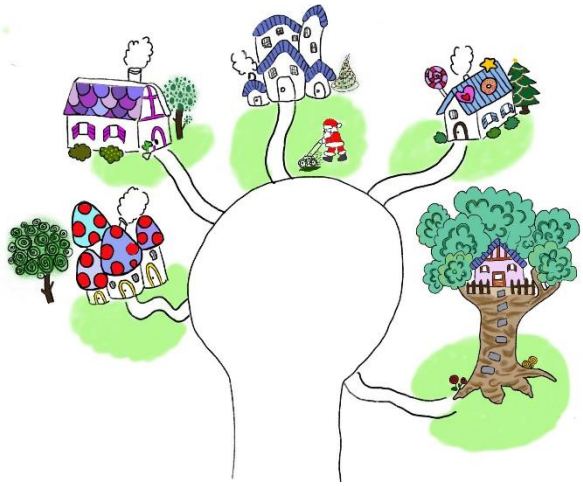
Mrs. Claus has three ovens in her kitchen. Every 30 minutes a batch of cookies comes out of the first oven, every 50 minutes a batch of brownies comes out of the second oven, and every 80 minutes a pie comes out of the third oven. She begins baking at 3:30 AM and stops at midnight that night.

8.

| Quantity A | Quantity B |
|---|---|
| Number of instances in which all three items come out of their ovens at the same time. | 3 |

9. In a large cubic box with sides measuring 2 feet, elves are packaging smaller gift boxes measuring 3 inches x 4 inches x 6 inches. What is the maximum number of the smaller gift boxes that the elves can pack in the large cubic box? (Note: 1 foot = 12 inches)
    A. 72
    B. 124
    C. 144
    D. 192
    E. 256



10. Each week, Santa randomly cuts the grass of only one house on the street above. The probability that a house is selected to have its grass cut during the week is 0.2. What is the probability that the same house has its grass cut by Santa two weeks in a row?
    A. 0.04
    B. 0.10
    C. 0.20
    D. 0.36
    E. 0.40

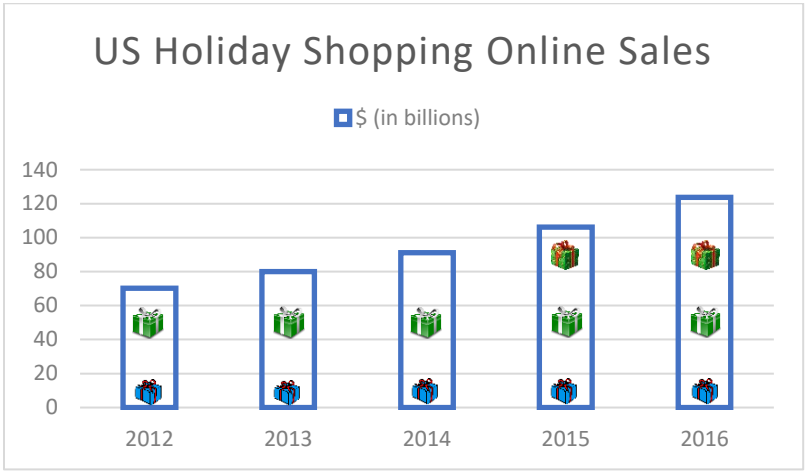
11. A store typically sells its TVs at a price that is 20% greater than what it purchases them for. However, anticipating greater demand during the holiday season, the store sells the TVs at a price that is 15% higher than its normal selling price. What percent greater is the holiday price for the TVs than the price at which the store purchases them?
    A. 20
    B. 30
    C. 35
    D. 38
    E. 40

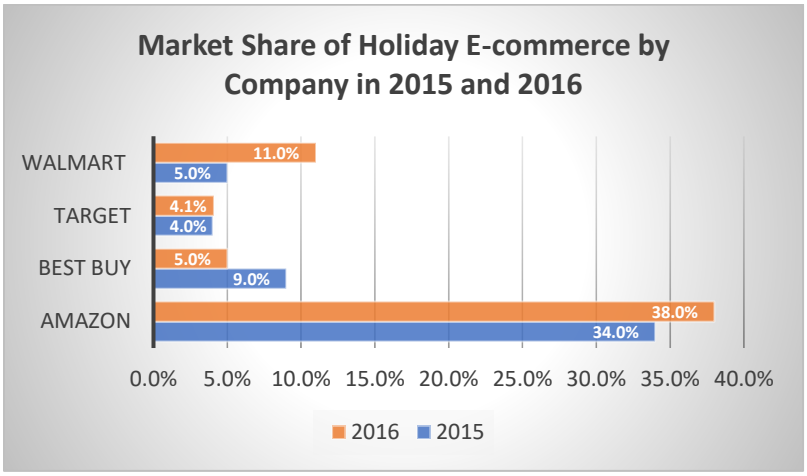
12. The 7 reindeer Dasher, Dancer, Prancer, Vixen, Comet, Cupid, and Blitzen are arranging themselves in a single-file line to pull Santa's sleigh. How many different arrangements are possible if Dasher CANNOT be next to Prancer?
    A. 1,440
    B. 2,400
    C. 3,600
    D. 4,320
    E. 5,040

13. If Santa delivers $(27^4)(81^x) = 9^n$ presents on Christmas Eve, where *x* and *n* are integers, what is the value of *n* in terms of *x*?
    A. 3 + 2x
    B. 6 + 2x
    C. 3 + 4x
    D. 8x
    E. 4 + 4x


14. Santa must get to a roof that is 12 feet high. He sets up an extendable ladder at a 30° angle, but finds that it reaches only 8 feet up the house. By approximately how many feet does Santa need to extend his ladder so that it reaches the roof, assuming the base of the ladder is not moved closer to the house?
    A. 2
    B. $2\frac{1}{3}$
    C. 3
    D. $3\frac{1}{3}$
    E. 4

**Questions 15 to 17 are based on the following data.**




15. The 2016 holiday sales were approximately what percent greater than the 2012 holiday sales?
    A. 40%
    B. 50%
    C. 65%
    D. 70%
    E. 75%

16. In 2015, the four companies listed were responsible for approximately how many dollars of sales?
    A. $52 billion
    B. $57 billion
    C. $62 billion
    D. $67 billion
    E. $80 billion

17. Best Buy's e-commerce sales in 2016 were approximately what percent less than its e-commerce sales in 2015?
    A. 25%
    B. 30%
    C. 37%
    D. 44%
    E. 52%

18. Mrs. Claus made a pie in the shape of a regular hexagon with each side measuring 4 inches. If Mrs. Claus divides the pie into 12 equal pieces, what is the area, in inches, of each piece?

    Round your answer to the nearest 0.1

    [ ]

19. In the Smith household, the probability that one of the 4 children receives coal for Christmas is $\frac{1}{3}$. What is the probability that at least one child will receive coal in the Smith household?
    A. $\frac{1}{81}$
    B. $\frac{1}{3}$
    C. $\frac{1}{2}$
    D. $\frac{2}{3}$
    E. $\frac{65}{81}$

20. Santa traveled to one home at *x* miles per hour. Realizing he was running late, he then doubled his speed to the next home 20 miles away. If Santa traveled a total of 36 miles at an average speed of 240 miles per hour, approximately how long did it take him, in minutes, to travel to the first home?
    A. 5.5
    B. 6.0
    C. 6.5
    D. 7.0
    E. 7.5