

Sum up the News – January 11th, 2016

Vocabulary

1. In which quadrant(s) of the coordinate plane do the solutions for the system of inequalities exist?

$$y < -2x - 8$$

$$y > -\frac{1}{2}x - 2$$

- A. Quadrant II
 - B. Quadrant III
 - C. Quadrants II and III
 - D. Quadrants III and IV
2. If a polynomial $9x^2 + K + 25$ is a perfect square, then K must equal.
- A. $5x$
 - B. $10x$
 - C. $15x$
 - D. $30x$
3. Circle M has a radius of 5 units. If \overline{FG} is a chord on the circle, then which of the following are true?
- A. $5 \text{ units} \leq \overline{FG}$
 - B. $5 \text{ units} < \overline{FG} < 10 \text{ units}$
 - C. $\overline{FG} < 10 \text{ units}$
 - D. $\overline{FG} \leq 10 \text{ units}$

Based on the article “Calif. emergency declared over massive gas leak” on page A4 of the Thursday, January 7th, Seattle Times.

4. The well began leaking on October 23rd and since then has been releasing 1,200 tons of methane each day. The well is operated by Southern California Gas and the utility hopes to stop the leak within the next few months. If one cubic meter of methane gas weighs 930 pounds, what is the total volume of methane that was released by the leak in 2015?

- A. 160,000 cubic meters
- B. 180,000 cubic meters
- C. 200,000 cubic meters
- D. 220,000 cubic meters

5. While the methane leak is active it represents one quarter of the state’s total methane emissions. If the leak is not sealed until the end of March, by what percentage will California’s 2016 methane emissions increase over what they would have been without the leak?

- A. 6.3%
- B. 8.3%
- C. 18.8%
- D. 23.1%

Based on the article “Can \$700M Powerball pot be yours? Do the math” on page A1 of the Friday, January 8th, Seattle Times.

6. The lottery’s \$700 million jackpot is worth \$428.4 million if taken as an immediate lump sum payment. Tickets for the lottery cost \$2 and the odds of picking the right number are 1 in 292.2 million. Assume that the only prize is the jackpot and that only one person will pick the correct number. What would be the expected value of purchasing a ticket, prior to tax considerations?

- A. lose \$0.73
- B. lose \$0.54
- C. lose \$0.26
- D. gain \$1.46

7. If you could be assured that you would not split the jackpot if you won, how much would the listed jackpot have to be in order to make it worth buying a single ticket with each possible combination of numbers on it, so that the lump sum payout would cover the cost of the tickets?

- A. \$584 million
- B. \$706 million
- C. \$856 million
- D. \$971 million

8. With a jackpot this large, the entire lump sum is effectively taxed at 39.6%. If there is a 50% chance that the winner would split the pot with one other player, what is the expected payout for a winner taking the lump sum, after taxes?

- A. \$129 million
- B. \$194 million
- C. \$259 million
- D. \$388 million

Based on the article “Employers adding workers, but there’s little growth in pay” on page A5 of the Saturday, January 9th, Seattle Times.

9. The official unemployment rate only counts people in the labor force, those working or who are actively looking for work, and does not track potential workers who are available to take a job but who are not actively looking for work. While the current official unemployment rate is 5%, there are a combined 13.8 million people who are either officially unemployed or would be available to work if a job presented itself. If 5.9 million of those people are not counted as being in the labor force, what percentage of people either in the labor force or available for work do not currently have jobs?

- A. 3.7%
- B. 8.4%
- C. 8.7%
- D. 9.8%

10. A total of 2.65 million new jobs were added during the 12 months of 2015. Both November and December had strong jobs reports, adding 252,000 jobs and 292,000 jobs respectively. What was the average number of jobs that were added in each of the other months of 2015?

- A. 211,000 jobs per month
- B. 239,000 jobs per month
- C. 265,000 jobs per month
- D. 272,000 jobs per month

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