

Sum up the News – December 6th, 2016

Vocabulary

1. Exponential decay can be modeled by the equation $y = a \cdot b^x$, where $0 < b < 1$. If y decreases by $1/4$ when x increases by k units then what will b , the base of the exponent, be equal to?

A. $\sqrt[k]{1/4}$

B. $\frac{1k}{4}$

C. $\sqrt[k]{3/4}$

D. $\frac{3}{4k}$

2. A rectangle has a length 4 more than twice its width. If the rectangle has an area of 96 square units, how long are the diagonals of the rectangle?

A. 6 units

B. 14.8 units

C. 16 units

D. 17.1 units

3. Quadrilateral FGJK has diagonals \overline{FJ} and \overline{GK} . \overline{FJ} intersects \overline{GK} at point M. If \overrightarrow{FG} is parallel to \overrightarrow{JK} , then $\triangle FGM$ is _____ to $\triangle JKM$?

A. complementary

B. congruent

C. similar

D. symmetrical

Based on the article “Egg prices plummet after soaring in wake of bird-flu outbreak” on page A12 of the Monday, November 28th, Seattle Times.

4. Eggs prices have dropped significantly from last year’s highs of \$2.97 per dozen. The restaurant Zudar’s in Tampa uses about 2,500 eggs per week. Now prices for eggs have dropped to as low as \$0.79 per dozen. How much less per year are Zudar’s paying for eggs now if they had been paying the average national price in 2015?

- A. \$17,100 less
- B. \$23,500 less
- C. \$27,200 less
- D. \$32,100 less

5. Examine the table labeled “Roller-coaster ride” on page A12. If eggs prices had continued to increase exponentially at the same rate at which they grew from 2013 to 2014, then how much would a dozen eggs cost in 2017?

- A. \$1.53 per dozen
- B. \$2.21 per dozen
- C. \$2.23 per dozen
- D. \$2.32 per dozen

6. Last year’s price increase for eggs was partially due to the loss of 34 million hens due to an outbreak of bird flu in 2015. The deaths reduced the number of hens by 11% from the previous year. The number of eggs the hens produced in 2015 was also reduced, by 6% to 83 billion eggs. How many eggs on average did hens lay in 2014?

- A. 272 eggs per hen
- B. 285 eggs per hen
- C. 289 eggs per hen
- D. 305 eggs per hen

Based on the article “30 years after nuclear nightmare, huge arch encases Chernobyl site” on page A3 of the Wednesday, November 30th, Seattle Times.

7. The Chernobyl nuclear accident forced the evacuation of the surrounding population, including the people from the nearby town of Pripyat. Everyone living within 19 miles was forced to leave. Roughly 50,000 people had to be relocated. What was the population density of the area around Chernobyl that was evacuated after the accident?

- A. 44 people per square mile
- B. 89 people per square mile
- C. 139 people per square mile
- D. 837 people per square mile

8. The arch being built to cover the plant has a cross section that is a parabola, and stands 800 feet wide and 350 feet high. The arch is designed to cover the plant for the next 100 years as the radioactive emissions from the site slowly decrease in intensity. Which of the following equations could represent the height of the arch, H , at a point X feet in from the edge of its base?

- A. $H = -0.0021875X^2 - 400X + 350$
- B. $H = -0.0021875X^2 - 800X + 350$
- C. $H = -0.0021875(X - 400)^2 + 350$
- D. $H = -0.0021875(X - 350)^2 + 800$

9. The area beneath a parabola is equal to two-thirds of the area of a rectangle with the same width and height. If the arch is 500 feet long, what is the total volume of the space covered by the arch?

- A. 18 million cubic feet
- B. 62 million cubic feet
- C. 93 million cubic feet
- D. 140 million cubic feet

Based on the article “OPEC agrees to cut production in strategy to push up oil prices” on page A12 of the Thursday, December 1st, Seattle Times.

10. The Organization of Petroleum Exporting Countries (OPEC), is an oil cartel which jointly sets production levels in an effort to increase the price for the oil they sell. OPEC, led by Saudi Arabia, just decided to cut their oil production by 1.2 millions of barrels per day, down to a new level of 32.5 million barrels per day. The Saudis were producing 10.544 million barrels per day and have cut that number by 486,000. By what percentage did the Saudi’s portion of OPEC’s oil production decrease?

- A. 0.3%
- B. 0.7%
- C. 1.1%
- D. 1.4%

11. The drop in production led to an immediate jump in the price of oil by 8.3% up to \$50.24. How much more in revenue will OPEC members earn as a result of their production cut?

- A. \$70 million more per day
- B. \$135 million more per day
- C. \$185 million more per day
- D. \$1.63 billion more per day

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