Sum up the News – May 2nd, 2016

Vocabulary

1. The function, $f(x) = \frac{n}{\sqrt{x+k} - m}$ has which of the following domains?

    A. x ≥ -k and x < n

    B. x < n

    C. x ≥ m^2

    D. x ≠ m^2 – k and x ≥ -k

2. If y varies inversely with the square of x, then the graph of the equation will have how many x-intercepts?

    A. 0

    B. 1

    C. 2

    D. 3

3. Point M is on line segment $\overline{KL}$ and scalene triangle JKL is divided into two triangles of equal area by a line segment, $\overline{JM}$. Which of the following best describes the line segment $\overline{JM}$?

    A. angle bisector

    B. hypotenuse

    C. median

    D. perpendicular bisector

Based on the article "Solar-powered plane completes trip across Pacific" on page A8 of the Monday, April 25th, Seattle Times.

4.   Bertrand Piccard flew the solar plane from Hawaii to Silicon Valley over a period of 62 hours. He was only ever able to sleep for 20 minutes at a time during the flight so he could periodically monitor instruments and remain in contact with the program's control center. If Piccard didn't sleep for the first 14 hours of the flight, then slept once every four hours after that, how many total hours of sleep did he get throughout the flight.

   A. $4\frac{2}{3}$ hours

   B. $5\frac{1}{3}$ hours

   C. 6 hours

   D. $7\frac{2}{3}$ hours

5.   The solar plane flies at a speed of 28 miles per hour when the sun is down, but during daylight the plane can go faster. The plane experienced daylight for 57% of its flight. If the plane flew 2,340 miles, what was its average speed while flying during the day?

   A. 37.7 miles per hour

   B. 45.0 miles per hour

   C. 48.6 miles per hour

   D. 56.0 miles per hour

6. The tops of the plane's rectangular wings are covered by the vast majority of its solar cells. The wings combined stretch 72 meters and are 3 ½ meters wide. If there are 17,000 solar cells on the wings, what is the area of each solar cell in square centimeters?

   A. 0.02 cm^2

   B. 1.5 cm^2

   C. 12 cm^2

   D. 150 cm^2

Based on the article "Tourists, their cash, pouring into Seattle" on page A9 of the Tuesday, April 26th, Seattle Times.

7. Seattle has experienced a steady increase in tourism over the past couple years. Visitor spending increased by 5.8% in 2015 compared to 2014, reaching $6.8 billion. However, the actual number of visitors to the city only increased by 2.6% from 2014 to 2015. If there were 38.1 million visitors to the city in 2015, how much more did visitors to Seattle spend on average in 2015 than they did in 2014?

     A. $5 more

     B. $17 more

     C. $48 more

     D. $173 more

8. International visitors accounted for just 7.3% of visitors to Seattle last year, but were responsible for 17.6% of the spending. They were much more likely to stay longer, thereby spending more on hotels and restaurants. How much did domestic visitors to Seattle spend on average last year?

     A. $142

     B. $159

     C. $165

     D. $422

9. The Washington State Convention Center is planning a $1.4 billion expansion so that it can increase the number of conventions that it hosts. The WSCC typically hosts 48 conventions each year, but could increase that number by 30 after the expansion. The average out-of-town convention that the WSCC hosts will bring in $7 million in spending from visitors. How many years will it take for the extra spending from the increased number of conventions to exceed the cost of the expansion?

     A. 3 years

     B. 12 years

     C. 17 years

     D. 200 years

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