Sum up the News – June 20th, 2016

Vocabulary

1. Matrix [A] has 2 rows and 3 columns and matrix [B] has 3 rows and 4 columns. If the product of [A] and [B] equals matrix [C], then how many elements will [C] have

A. 6 elements

B. 8 elements

C. 9 elements

D. 12 elements

2. A set is formed from 19 distinct numbers. How many numbers are between the median of the set and the number that represents the 3rd quartile?

A. 2

B. 3

C. 4

D. 5

3. If triangle FGH is a regular polygon, and point K is the midpoint of GH, then what is the approximate ratio of the perimeter of triangle FGH to the perimeter of FGK?

A. 1.27 to 1

B. 1.57 to 1

C. 1.73 to 1

D. 2 to 1

Based on the article "Subway test: Stand, don't walk, on the escalators" on page A9 of the Monday, June 13th, Seattle Times.

4. The London subway system has begun experimenting with new instruction for its riders using its escalators. Traditionally, London subway users will only on stand on the right side of escalators, leaving the left side for people who want to climb the escalator. The three-week long experiment found that having subway users pack both sides of the escalator significantly increased the escalator capacity and decreased delays. During the busiest hour of the commute, the new guidelines let 16,220 people ascend the escalators, compared with just 12,745 when people were following tradition. Under the new guidelines, each step of the escalator one person standing on the right side and 75% of the time another on the left side of the step. What fractions of the escalator steps had people on the left sides of them under the old guidelines during rush hour?

A.1/4th

B.1/3rd

C. 3/8th

D. 3/7th

5. The escalators being used for the experiment are 77 feet tall and make an angle of 30 degrees with the floor. The escalator steps move diagonally up at a rate of 1.5 feet per second. How long does it take for a set of steps on these escalators to reach the top?

A. 1 minutes 3 seconds

B. 1 minutes 29 seconds

C. 1 minute 43 seconds

D. 2 minutes 5 seconds

Based on the article "Philly is first major U.S. city to tax soft drinks" on page A17 of the Friday, June 17th, Seattle Times.

6. Philadelphia has become the first major U.S. city to pass a tax on soft drinks. The city will begin charging a tax of 1.5 cents per ounce next year. The city expects to raise $90 million each year through the program. By volume, 35% of the soft drinks sold are in 2-liter bottles. Each liter contains ounces. How many 2-liters bottles of soda are analysts expecting the people of Philadelphia to consume?

A.45 million –liter bottles

B. 60 million 2-liter bottles

C. 90 million 2-liter bottles

D. 120 million 2-liter bottles

7. Philadelphia has a population of 1.56 million. Approximately how many ounces of soft drink does a typical resident of Philadelphia consume each day?

A. 1.1 ounces per day

B. 10.5 ounces per day

C. 18.6 ounces per day

D. 42.0 ounces per day

Based on the article "NASA plans a test plane that flies on electricity" on page A5 of the Sunday, June 19th, Seattle Times.

8. The X-57 is a new electric plane being developed by NASA. The single seat plane is able to cruise at higher speeds while using less energy, than similar aircraft its size. It has two electric motors at its wingtips that power two 5-foot wide propellers. Its wings are significantly slimmer than normal, which it can get away with because it deploys an additional 12 smaller propellers for extra power, each only 2 feet wide, for takeoffs and landings. The area that the propellers pass through while they are rotating is called the propeller disc area. What is the X-57's total propeller disc area during takeoff?

A.25 sq. ft.

B. 57 sq. ft.

C. 77 sq. ft.

D. 88 sq. ft.

9. The X-57 design reduces its energy needs by 80% while it is cruising and reduces its overall energy consumption by 60%. During a flight, a plane uses 65% of its total energy consumption while cruising. How much less energy does the X-57 need than normal planes when it is not cruising?

A. 15%

B. 19%

C. 23%

D. 29%

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