Sum up the News – February 6th, 2017

Vocabulary

1. If *a* and *b* are both positive integers and $x = a^2b^3$ and $y = a^4b^5$, then what is the ratio of $\sqrt{x}$ and $\sqrt{y}$?

A. $\frac{1}{ab}$

B. $\frac{ab}{a^2}$

C. $\frac{a\sqrt{b}}{b^2\sqrt{b}}$

D. $\frac{\sqrt{b}}{a^2b^2}$

2. Points F, G, and H are on circle M. $\overline{MH}$ = 5 and arc $\widehat{GH}$ = 3π. What is the difference between the measure of angle GMH and the measure of angle GFH?

A. 54°

B. 72°

C. 108°

D. 120°

3. Triangle FGH has an area of 30√3 square units. The sine of angle F = 0.5 and the measure of angle G = 90°. What is the length of GH?

A. 2√5 units

B. 4√5 units

C. 20 units

D. 40 units

Based on the article "Tech firms may face tougher fight" on page A1 of the Tuesday, January 30th, Seattle Times.

4.Computer science education organization claims that there are currently 527,000 open computer science jobs in the nation and that there will be an additional 20,000 jobs open up each year. Each year 43,000 people graduate from US universities with computer science degrees. The US accepts 65,000 people each year on H-1B visas, which are primarily used to bring workers with applicable skills to the country to fill high-tech jobs. If 60% of the H-1B visas are used for computer science jobs, then in how many years would all the computer science jobs be filled?

A. 5 years

B. 6 years

C. 7 years

D. 8 years

5. Examine the graph on titled "Guest workers in Washington State" on page A7. Typical H-1B visas last for three years. There are currently 8,000 workers in the state on H-1B visas. If the visa application in the graph represent 60% of the total, then what percentage of the applications were accepted?

A. 15%

B. 24%

C. 40%

D. 73%

Based on the article "Chinese e-commerce rests on tired courier muscles" on page A8 of the Wednesday, February 1st, Seattle Times.

6. A study of 40,000 couriers in China detailed their working conditions. With the rise of online commerce in the country, the number of packages being delivered has reached 10 billion per year. The study found that nearly a quarter of couriers work 12 hours or more 7 days a week. More than half work at least 8 hours each day, every day. There are an estimated 1.2 million couriers across China Which of the statements is most accurate?

A. The 3nd quartile of couriers work between 8 and 12 hours.

B. The mean number of hour worked per week is 70.

C. More than 25% of couriers work between 56 and 84 hours per week

D. The median number of hours worked per week is 56.

7. Couriers make between $300 and $600 per month. They typically get paid about $0.15 per package delivered. If a courier works 12 hours every day, about how many packages must they deliver every hour to earn $600 in a month?

A`11 packages per hour

B. 24 packages per hour

C. 55 packages per hour

D. 300 packages per hour

8. Couriers deliver an average of 150 packages per weekday. If a courier makes $150 per week, how many packages would they have to deliver on weekend days?

A. 110 packages

B. 125 packages

C. 175 packages

D. 250 packages

Based on the article "Tesla drives beyond cars into huge batteries for grid" on page D1 of the Sunday, February 5th, Seattle Times.

9. The California power grid has added a battery facility made up of 396 stacks of Tesla batteries. The battery facility is intended to store power during the day and release during the hours of peak electrical consumption, from 5pm to 9 pm. The facility can store enough energy to power 15,000 homes for 4 hours. How long can each stack of batteries power a single home?

A. 1.6 days

B. 6.3 days

C. 37 days

D. 150 days

10. The stacks of batteries are called Powerpacks and each one can store 100 kilo-watthours of energy. 1 kilowatt-hour is equal the constant consumption of 1 kilowatt of power for 1 hour. California's power use averages 23,000 megawatts during the daytime and jumps up to 27,000 megawatts in the evening. The state's solar farms produce an average of 5,500 megawatts daylight hours, but virtually nothing once the sun goes down. How many Powerpacks would be need to store up enough energy to cover the difference between daytime power consumption and evening power consumption for 4 hours every evening?

A. 400 Powerpacks

B. 1,600 Powerpacks

C. 40,000 Powerpacks

D. 160,000 Powerpacks

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