

Sum up the News – March 27th, 2017

Vocabulary

1. Francis and Gretchen are painting a house with R rooms. If the two work independently, they work at separate rates, completing the painting in F hours and G hours respectively. If the two work together, the number of rooms they could paint each hour would be equal to which of the following expressions?

A. $R * \frac{F+G}{FG}$

B. $\frac{F+G}{FG}$

C. $\frac{F+G}{R}$

D. $\frac{R}{FG}$

2. Variables T and Y are related exponentially as T decreases by a factor of 3 when Y increases. If T has an initial value of K , then which of the following expressions best fits the relationship between T and Y

A. $Y = K * 3^T$

B. $Y = K * \left(\frac{1}{3}\right)^T$

C. $T = K * (-3)^Y$

D. $T = K * (3)^{-Y}$

3. JKLM is a quadrilateral inscribed in a circle. If JK is a diameter and LM is parallel to JK, then what type of quadrilateral is JKLM?

A. parallelogram

B. parallelogram

C. rectangle

D. trapezoid

Based on the article “Vancouver tech sector gets a bump from Trump policies” on page A1 of the Tuesday, March 21st, Seattle Times.

4. The number of software workers in Vancouver have increased by 27% from 2005 to 2015. This is partly due to the limits on the number of visas U.S. companies can get. As of 2015 the number had reached 33,400, 17% more than in 2010. By how much did the number of people working in Vancouver’s software sector increase from 2005 to 2010?

- A. 2,250
- B. 2,850
- C. 3,340
- D. 6,700

5. Though setting up additional offices carries its own costs, the cost to companies for hiring immigrants is much lower in Canada. The visa cost per worker is only a third as much as the \$5000 that it costs for the H-1B visas that are used by software firms in the U.S. Also, the salaries for software workers in Vancouver are generally 10% less than they are in Seattle. When Microsoft opened the Vancouver office, staffed with 750 people, 80 of the new workers were immigrants. If new hires in the Seattle area make \$80,000 per year, then how much less will the visas and salaries cost Microsoft the first year than if a similar office had been set up in Seattle?

- A. \$7.7 million
- B. \$8.0 million
- C. \$8.5 million
- D. \$21.8 million

Based on the article “Hop growers gearing up for spring season” on page A8 of the Tuesday, March 21st, Seattle Times.

6. Yakima Valley now produces three-quarters of the entire U.S. hops crop. In 2016 the valley grew 37,444 acres of hops, a 30% increase from two years earlier. If the production of hops in the rest of country was unchanged over those two years, then what was total number of acres of hops grown in the U.S in 2014?

- A. 28,000 acres
- B. 38,000 acres
- C. 41,000 acres
- D. 49,000 acres

7. The Moxee hop field covers 11-acres and each acre holds 778 hop plants arranged in clusters on trellises. On average, each trellis holds three plants. If the hop field is a square and the trellises are evenly arranged in a square grid of rows and columns, then how many trellises are in each row? (1 acre = 43560 sq. ft.)

- A. 145
- B. 168
- C. 197
- D. 292

Based on the article “Seattle joins campaign to put large electric vehicles on road” on page B1 of the Thursday, March 23rd, Seattle Times.

8. Seattle has joined with 30 other cities to express an interest in electric powered vehicles for their city fleets. The cities hope their combined buying power will be enough to get so electric vehicle manufacturers to start producing larger vehicles. The cities combined have 114,000 vehicles and Seattle has 3,000 of those. How many fewer vehicles does Seattle have in its fleet than the mean for other the cities involved?

- A. 580 fewer
- B. 677 fewer
- C. 700 fewer
- D. 800 fewer

9. Vehicles typically last 13 years being replaced. Seattle plans to purchase 850 new vehicles over the next three years, both to replace older vehicles and to expand their fleet. By how much will the cities fleet of vehicles expand over the next three years?

- A. 5.2% increase
- B. 12.7% increase
- C. 20.6% increase
- D. 28.3% increase

10. Currently 25% of Seattle's passenger sedans are electric but none of its other vehicles are. The city has just 500 sedans. If the number of sedans grows proportionally with the rest of the fleet and if the new sedans are the only electric vehicles that the city ends up acquiring in the next three years, then at that time what percentage of the city's vehicles will be electric?

- A. 5.7%
- B. 7.2%
- C. 8.4%
- D. 8.9%

11. The city maintains charging stations across the city to supply its fleet of cars. It has 150 stations at the municipal tower and another 20 stations around the city at a cost of \$1.7 million. If the fleet of electric sedans expands in three years as is projected in problem #10, then how much more will the city need to spend on charging stations at its municipal tower, so that there is one charging station there for every electric sedan in the fleet?

- A. \$1,160,000
- B. \$1,310,000
- C. \$1,870,000
- D. \$2,860,000

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