

## Sum up the News – November 23<sup>rd</sup>, 2015

### Vocabulary

1. The line  $y = -2x + b$  is translated positive 6 units vertically. How will the x-intercept of the equation move because of this translation?

- A. 6 units to the left
- B. 3 units to the left
- C. 3 units to the right
- D. 6 units to the right

2. A rectangle's length,  $l$ , is 4 times its width,  $w$ . If both the length and width are increased by  $x$  units, which of the following expressions would represent the rectangle's new area?

- A.  $4w^2$
- B.  $4w^2 + 1$
- C.  $4w^2 + 2$
- D.  $4w^2 + 5w + 1$

3. If angles  $\angle M$  and  $\angle N$  are complementary and  $m\angle M > m\angle N$ , then which of the following could be the measure of  $\angle N$ ?

- A.  $15^\circ$
- B.  $45^\circ$
- C. 60
- D.  $90^\circ$

**Based on the article "TALL ORDER" on page A1 of the Tuesday, November 17<sup>th</sup>, Seattle Times.**

4. Seattle will likely be gaining a building that towers more than one thousand feet above the ground. The proposed building, to be named the 4/C, would be 1,111 feet tall and have 101

floors. It would still be dwarfed by the tallest building in the world, the Burj Khalifa, which stands 2,717 feet tall. The floors at 4/C on average will only be 66% as tall as the floors at the Burj Khalifa. How many floors does the Burj Khalifa have?

- A. 153 floors
- B. 163 floors
- C. 247 floors
- D. 374 floors

5. The 4/C is designed to primarily be residential. The upper 83 floors will hold a total of 1,200 residences, but there will also be 6 floors of office space and a hotel with 150 rooms. How many hotel rooms will be on each of the hotel's floors?

- A. 8.3 rooms per floor
- B. 10.6 rooms per floor
- C. 12.5 rooms per floor
- D. 14.5 rooms per floor

6. Skyscrapers like the 4/C depends on complicated systems to stay upright in the face of strong winds and earthquakes. They have bracing structures at their bases and the widths of these structures determines how stable the buildings will be. In New York, the 1,396-foot building 432 Park Ave is comparatively tall and thin with a high aspect ratio of 18, which compares the buildings height to the width of its structural base. The 4/C, in earthquake prone Seattle, will have a lower aspect ratio of 10. How much wider will 4/C's structural bracing system be than that of 432 Park Ave?

- A. 33.5 feet wider
- B. 53.4 feet wider
- C. 77.6 feet wider
- D. 111.1 feet wider

7. Examine the chart on page A1 titled "101-story Seattle skyscraper would be nation's 19<sup>th</sup> tallest". What is the mean height of the buildings that are currently under construction compared to the mean height of the proposed buildings?

- A. 177 feet taller

- B. 206 feet taller
- C. 261 feet taller
- D. 337 feet taller

**Based on the article “UPS, FedEx embrace tracking data” on page A10 of the Thursday, November 19<sup>th</sup>, Seattle Times.**

8. Combined, UPS and FedEx make up almost 90% of the domestic package shipping market. FedEx expects to ship 317 million packages this holiday season, a 12.4% increase from last year, while UPS expects ship 630 million packages in the same time period, a 10% increase. If these two forecasts are accurate, by what percentage will the number of packages they ship increase?

- A. 10.7%
- B. 11.2%
- C. 11.6%
- D. 12.1%

9. Four dozen drivers were tasked with delivering a total of 15,600 packages during their nine-hour shift. The Orion system helped them plan out their routes to minimize how far they had to travel to reach each of the stops on their routes. If the drivers were able to complete their deliveries in time, on average how long did each package delivery take?

- A. 36 seconds
- B. 1 minutes 22 seconds
- C. 1 minute 40 seconds
- D. 2 minutes 6 seconds

10. UPS is expecting that they will deliver 630 million packages this holiday season, 10% more than they did last year. They also hope to use the Orion system on 70% of their routes, compared to last year's season when they used the system on just 45% of routes. Approximately how many packages were delivered last year during the holiday season without help from the Orion system?

- A. 189 million packages
- B. 258 million packages
- C. 315 million packages
- D. 573 million packages

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