

## Sum up the News – March 7<sup>th</sup>, 2016

### Vocabulary

1. What is the value of  $(\sqrt{X} + \sqrt{Y}) * (\sqrt{X} - \sqrt{Y})$  if  $X$  is four more than twice  $Y$ ?

A.  $2\sqrt{4 - Y^2}$

B.  $X + Y$

C.  $2Y - 4$

D.  $Y + 4$

2. If the graphs of a linear equation and an exponential equation have the same y-intercept, and the base of the exponent and the slope of the line are both between 0 and 1, then

\_\_\_\_\_.

A. the exponential curve will never be below the line

B. the exponential curve will be below the line in Quadrant II

C. the exponential curve will be below the line in Quadrant I

D. the exponential curve will never be above the line

3. A right triangular prism has five faces with areas of 24 square units, 24 square units, 30 square units, 40 square units and 50 square units, respectively. What is the height the prism?

A. 5 units

B. 7.5 units

C. 10 units

D. 15 units

**Based on the article “LUXURY TODAY, AFFORDABLE TOMORROW” on page A1 of the Monday, February 29<sup>th</sup>, Seattle Times.**

4. The rents for Seattle apartments are exponentially related to the age of the apartments. While new apartments are renting for an average of \$1,805 per month, those built in the 1960s are

renting for an average of \$1,209 per month. Rents increase by approximately 0.8% for every year after 1960 they were built. Which of the following exponential equations would best model the average rent,  $R$ , for apartments built  $X$  decades after the 1960s?

- A.  $R = \$1,209 * 1.08^{10X}$
- B.  $R = \$1,209 * 1.008^{10X}$
- C.  $R = \$1,209 * 1.08^X$
- D.  $R = \$1,805 * 1.08^{10X}$

5. Examine the graph titled "Seattle rents, adjusted for age" on page A1 and the graph titled "Seattle apartment size jumped in the 1960s" on page A6. Which decade had the greatest disparity between the average rent per square foot and the ratio of the average apartment rent to the average apartment square footage?

- A. 1960s
- B. 1970s
- C. 1980s
- D. 1990s

6. Examine the graph titled "Seattle rents, adjusted for age" on page A1 and the graph titled "Seattle apartment size jumped in the 1960s" on page A6. Which of the following could cause the disparity in average rents per square foot and the ratio of average rents to average square footage observed in question #5?

- A. A large number of larger-than-expected inexpensive apartments
- B. A large number of smaller-than-expected inexpensive apartments
- C. A large number of larger-than-expected averagely-priced apartment
- D. A large number of larger-than expected expensive apartments

**Based on the article “AARP: Price hikes doubled cost of drugs over 7 years” on page A1 of the Monday, February 29<sup>th</sup>, Seattle Times.**

7. The costs of prescription drugs have increased significantly in the past 7 years and have become a larger and larger portion of health care spending, especially for the elderly. The average cost for a year's supply of prescription medications used by seniors have increased from \$5,571 in 2006, to \$11,341 in 2013. By what average annual percent did the prices of these medication increase from 2006 to 2013?

- A. 8.3%
- B. 10.7%
- C. 14.7%
- D. 111%

8. The average annual social security payment is just \$15,526. A typical senior citizen is using 11 different prescriptions in a year. Brand-name prescriptions cost of average of \$2,960 each year while generic prescriptions cost on average just \$283 for a years' supply. Even if they are using only one non-generic drug, paying for these prescriptions would consume what percentage of an average seniors' social security checks?

- A. 20.0%
- B. 37.3%
- C. 39.4%
- D. 48.6%

9. Generic versions of prescription drugs typically cost 85% less than their brand-name versions. Generics cost an average of \$283 for a year. About 60% of brand-name drugs have generic versions which help keep their prices down. How much more do brand-name drugs without generic version cost on average than brand-name drugs that do have generic competitors?

- A. \$1,887
- B. \$2,683
- C. \$3,356

D. \$4,570

**Based on the article “Massive cargo ship brings big ideas to Seattle” on page A1 of the Tuesday, March 1<sup>st</sup>, Seattle Times.**

10. The Port of Seattle recently welcomed the 1,300-foot long Benjamin Franklin cargo ship. The ship is both wider (177 feet) and taller (197 feet) than most of the ships that use Seattle’s port and it can carry 18,000 TEUs, the standard measure for cargo capacity. The twenty-foot long cargo container that the TEU unit is based on is typically 8 feet wide and 8 feet 6 inches tall. What percentage of the Benjamin Franklin’s total volume is made up of cargo capacity? (Assume that the ship is a rectangular solid)

- A. 47%
- B. 51%
- C. 54%
- D. 58%

11. The port will not see any ships of the Benjamin Franklin’s size, but it will be host to several that can carry 14,000 TEUs. These ships are typically 1,200 feet long and 159 feet wide. If the cargo capacity of a ship is proportional to the ship’s volume, how tall would these ships be? (Assume that the ships are rectangular solids.)

- A. 177 feet
- B. 185 feet
- C. 190 feet
- D. 195 feet

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