

Sum up the News – April 3rd, 2017

Vocabulary

1. Two functions, $f(x)$ and $g(x)$ are graphed on the same set of axes. The functions each have several x-intercepts and intersect each other at one of them. Which of the following equations could be used to find where the two functions intersect?

- A. $f(x) = 0$
- B. $f(x) = g(0)$
- C. $f(0) = g(x)$
- D. $f(x) = g(x)$

2. Quadrilateral FGHK lies on the coordinate plane with point G at $(-2, 8)$ and point K at $(8, 5)$. If FGHK is a rectangle, and point F is on the y-axis, then what is the length of \overline{FH} ?

- A. $3\sqrt{5}$
- B. $5\sqrt{3}$
- C. $\sqrt{91}$
- D. $\sqrt{109}$

3. Major arc \widehat{NP} on circle M is equal to 90% of one revolution around the circle. If the diameter of the circle is 2 units, what is the measure in radians of the acute angle NMP?

- A. $\frac{\pi}{10}$
- B. $\frac{\pi}{5}$
- C. $\frac{4\pi}{5}$
- D. $\frac{9\pi}{10}$

Based on the article “Seattle rents surging again; winter dip was just a blip” on page A1 of the Tuesday, March 28th, Seattle Times.

4. Examine the graph titled “Rents soar again in King County” on page A1. Rents in Seattle briefly dipped by 4.5% after the recession in 2009, but since then have been climbing. Since this time last year, they have grown by 8.3%. What was the average annual percentage growth from early 2010 to early 2016?

- A. 6.2%
- B. 6.5%
- C. 7.2%
- D. 7.6%

5. Seattle has approximately 117,000 apartment units currently and a low vacancy rate of 4.7%, which is helping to push the continued rent increases. The city of Seattle assume that an additional 60,000 apartment units will be built over the next ten years, including 9,000 new units this year. If 90% of the new units are rented, what would be the vacancy rate for the city in 10 years?

- A. 3.4%
- B. 6.5%
- C. 7.4%
- D. 10%

Based on the article “Gold coin worth \$4.5 million stolen from Berlin museum” on page A11 of the Tuesday, March 28th, Seattle Times.

6. In Berlin’s Bode Museum, one of the world’s largest gold coins was stolen. The coin, valued at \$4.5 million, had been minted by Canada in 2007 and weighs 221 pounds. The 22-carat gold coin diameter is 21 inches and has a density of 0.64 pounds per cubic inch. What is the average thickness of the gold coin?

- A. 0.99 inches
- B. 1.13 inches
- C. 1.21 inches
- D. 1.28 inches

7. The coin has a face value of just \$1 million Canadian dollars (CAD) but is worth far because of the current price of gold. Even when it was minted in 2007, when gold prices were just \$740 U.S. dollars (USD) per troy ounce, the cost of the gold used to make the coin exceeded its nominal value. At the time, \$1 CAD = \$0.935 USD. At the time, it was minted, how much more was value of the gold used to make the coin than the listed price? (1 pound = 14.6 troy ounces)

- A. \$1.19 million more
- B. \$1.25 million more
- C. \$1.31 million more
- D. \$1.39 million more

Based on the article “Wolves in Washington state continue their comeback from near extinction” on page A1 of the Friday, March 31st, Seattle Times.

8. The wolves in Washington State are making a slow comeback from the brink of extinction. There are now 115 wolves in the state, a 28% increase. That means 25 more wolves and two more packs, bringing the total number of packs to 20. By how much has the average number of wolves in a pack changed since last year?

- A. 0.35 more wolves per pack
- B. 0.55 more wolves per pack
- C. 0.75 more wolves per pack
- D. 1.25 more wolves per pack

9. Nationwide there are an average 6.5 wolves per pack. If for every additional 10 wolves that are added to the state’s wolf population, another pack forms, then how many wolves would have to be added to the population for the per pack average in the state to match the national average?

- A. 36 wolves
- B. 41 wolves
- C. 44 wolves
- D. 52 wolves

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Based on the article “END IS NEAR FOR BERTHA” on page A1 of the Sunday, April 2nd, Seattle Times.

10. The tunnel that will replace Seattle’s viaduct is nearing completion, and the 57.3-foot diameter drill named Bertha that has been digging it is nearing the end of its usefulness. Bertha’s circular steel cutting disc weighs nearly 4 million pounds will be broken apart and likely melted down and recycled, though there is some discussion about preserving parts of it for local museums. The cutting disc will be first broken apart into sectors, one for each of its 8 spokes, but these will be far too heavy to transport on city streets, which have a 20-ton limit for truck loads. What is the minimum number of pieces that each spoke must be broken into to transport them on city streets?

- A. 11 pieces
- B. 13 pieces
- C. 15 pieces
- D. 18 pieces

11. While Bertha is one of the largest drills ever built, there are a few drills that have been made even wider. A recent tunnel in Hong Kong was completed using a drill 5 inches wide and 62-foot drill was built, but never used, for a Russian project. How much larger than Bertha’s cutting face is the area of the cutting face for the largest drill built?

- A. 7.8% larger
- B. 8.9% larger
- C. 14% larger
- D. 17% larger

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