Sum up the News – May 9th, 2016

Vocabulary

1. The inequality, $y \leq -|x + k| + k$ is graphed on the coordinate plane. If k is a positive integer, then which quadrant of the coordinate plane contains NO solutions for the inequality?

       A. Quadrant I

       B. Quadrant II

       C. Quadrant III

       D. Quadrant IV

2. A math quiz had just two questions, questions #1 and #2. Students only had a 30% chance of correctly answering the first question, but if they did they then had a 60% chance of correctly answering the second. 40% of all students answered question #2 correctly. How likely were students to answer question #2 correctly if they had already answered question #1 incorrectly?

       A. 20%

       B. 23%

       C. 25%

       D. 29%

3. Parallelogram JKLM has diagonals JL and KM which split the quadrilateral into four congruent right triangles. If ∠JKM is an acute angle and the diagonals have lengths of 16 units and 20 units, what is the area of the shape?

       A. 40 sq. units

       B. 80 sq. units

       C. 160 sq. units

       D. 320 sq. units

Based on the article "Off to a fast start" on page A1 of The Seattle Times, Tuesday, May 3rd edition.

4.   The Alaskan Way Viaduct was closed Friday morning to allow for safety and to allow for closer monitoring of the soil as Bertha digs the 385 feet that will carry the tunnel beneath the viaduct. As of Monday at 8 p.m., Bertha has traveled 23% of the distance. If Bertha only dug through 7 feet on Earth on Friday, and has been working continuously since then, how many feet did the drill travel on average each hour Saturday through Monday?

        A. 1.17 feet per hour

        B. 1.24 feet per hour

        C. 1.33 feet per hour

        D. 1.41 feet per hour

5. There are 90,000 private vehicles that use the viaduct each day and an additional 30,000 daily passengers that ride public transit on the viaduct. If private vehicles carry an average of 2.1 people, then during the two weeks of the viaduct shutdown, approximately how many people's trips will be rerouted due to the closure?

        A. 450,000 trips

        B. 1,700,000 trips

        C. 2,600,000 trips

        D. 3,100,000 trips

6. The circular tunnel rings being placed behind Bertha's cutting drill are smaller than the tunnel the drill carves out, small enough to leave an 8-inch gap on all sides, one that has to be filled by grout. Bertha's cutting drill has a diameter of 57.5 feet. Approximately, how many cubic feet of grout will be used to surround the tunnel in the 385-foot section of tunnel that travels beneath the viaduct?

        A. 540 cu. ft.

        B. 46,000 cu. ft.

        C. 130,000 cu. ft.

        D. 480,000 cu. ft.

Based on the article "Abundant cherry harvest is expected again this year" on page A7 of The Seattle Times, Saturday, May 7th edition.

7.   Another massive crop of cherries is expected this year. The first estimate for this season's harvest was just released and across the Northwest, 20.7 million boxes of cherries are projected to be harvested over 11 weeks, starting on May 23rd. Each box of cherries holds 20 pounds. On average, about how many tons of cherries will be harvested each day?

    A. 2,700 tons per day

    B. 8,300 tons per day

    C. 19,000 tons per day

    D. 130,000 tons per day

8. The estimated number of 20.7 million is an increase over last year's 19.0 million boxes, but below the all-time high number from 2014 or 23.2 million boxes. If this first estimate ends up being 4% lower than the expected estimate of 20.7 million, what will be the three-year average for the harvest?

    A. 20.7 million boxes

    B. 21.1 million boxes

    C. 21.3 million boxes

    D. 21.6 million boxes

9. The 20-lbs boxes that the cherries are packed into are rectangular solids with dimensions of 4.5 inches by 9 inches by 18 inches. What would be the total volume of the boxes of cherries that will be harvested in cubic feet if the first estimate is 4% too low?

    A. 9.1 million cubic feet

    B. 56.6 million cubic feet

    C. 84.9 million cubic feet

    D. 15.7 billion cubic feet

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