Vocabulary

1. If N is some positive integer and the prime factorization of N consists of three distinct prime numbers, then how many factors of N exist?

    A. 3

    B. 5

    C. 7

    D. 8

2. A line coordinate plane passing through the origin with a slope of M, is reflected across the y-axis and then translated N units to the left. Which of the following equations would match the transformed line?

    A. Y = MX - N

    B. Y = $\frac{1}{M}$ X + N

    C. Y = -MX – N

    D. Y = -MX + N

3. Rectangle MNOP has diagonal NP. Angle MNP is congruent to angle NPO because they exhibit the properties of _____

    A. alternate exterior angles

    B. alternate interior angles

    C. corresponding angles

    D. vertical angles

Based on the article "State bill may jump $78M for idle Bertha" on page A1 of the Thursday, October 8ᵗʰ, Seattle Times.

4. The delay in construction of the tunnel is now expected to cost the state an extra $78.25 million. The tunnel isn't expected to be completely dug until March of 2018. The delays began costing the state extra this June and the state will be spending more every month until the tunnel is finished. June's bill was $3.25 million. What is the average expected extra cost to the state each month from the delay?

        A. $2.30 million per month

        B. $2.70 million per month

        C. $3.25 million per month

        D. $6.25 million per month

5. Bertha will start up again at the end of November and should be finished by the end of March 2018. The machine had dug through 1/9ᵗʰ of the 1.7 mile long path of the tunnel. How far will Bertha be traveling each month if it stays on schedule?

        A. 0.0067 miles

        B. 0.032 miles

        C. 0.054 miles

        D. 0.061 miles

6. The circular drill head is 57 feet wide. What is the approximate total volume of material that Bertha has removed so far in cubic yards? (1 mile = 5,280 feet)

        A. 30,000 cubic yards

        B. 94,000 cubic yards

        C. 283,000 cubic yards

        D. 848,000 cubic yards

Based on the article "Debt weighs down area home market" on page A1 of the Tuesday, October 6th, Seattle Times.

7.   Homes that are 'underwater' owe more on their mortgages than their owners can currently sell them for. Across King County 33,500 houses are underwater, 9% of all homes with a mortgage. If King County has 880,000 total housing units, 31% of which are apartments, what percentage of the houses and condos have a mortgage?

        A. 3.8%

        B. 34%

        C. 42%

        D. 61%

8. Across King and Snohomish County, there are 30 zip codes where one in seven homes are underwater and in two Snohomish zip codes one in four are underwater. If these zip codes all had the same number of homes, what percentage of them would be underwater?

        A. 13%

        B. 15%

        C. 20%

        D. 23%

Based on the article "Targeted ads offer hope to troubled TV industry" on page D5 of the Sunday, October 11th, Seattle Times.

9. The 40 million set-top boxes can be used for addressable ads. These boxes are in one third of all U.S. households. The firm testing the Acura ads placed them in 1.7 million households and achieved a 60% higher sales rate from those households they targeted. What percent of all U.S. households did they target?

        A. 1.4%

        B. 2.8%

        C. 4.3%

        D. 56%

10. The $70 billion in ad sales on cable and broadcast television are expected to grow by 1% per year. Online ad sales, while currently just 1/10th the size, are expected to grow by 21% per year. In 10 years what will be the ratio of online ad sales to broadcast and cable ad sales?

       A. 13%

       B. 31%

       C. 61%

       D. 67%

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