Sum up the News – May 15th, 2017

Vocabulary

1. For a given polynomial equation, $y = (2x + 8)^5$, let *f* equal the leading coefficient of the polynomial in standard form, *g* equal the degree of the polynomial and *h* equal the x-intercept. Which of the following statements represents the relationship between f, g, and h?

A. $f < g <$ h

B. $h < f <$ g

C. $g < h <$ f

D. $h < g <$ f

2. Quadrilateral EFGH. EG is the line that bisects FH at point M and EM = GM. EFGH can be classified as a _____.

A. parallelogram

B. rectangle

C. rhombus

D. square

3. Points R, S and T lie on circle M which has an area of 25π and RS = RT. If arc ST has a length of 4π, what is the measure of angle RST?

A. 18°

B. 54°

C. 72°

D. 144°

Based on the article "Tesla now selling pricey solar roof tiles, but they're worth the cost, Musk says" on page A11 of the Thursday, May 11th, Seattle Times.

5. Tesla has said that solar tiles cost $42 per square foot, but only between 30% and 40% of a house's roof would need to be solar tiles. The rest of the roof would be covered by less expensive nonsolar tiles that would look the same. The estimated cost of putting a solar roof on a 2600-square-foot house was $69,100, but that included $7000 for the Powerwall Battery to store the electrical energy from the solar tiles. If the estimate assumes that 40% of the tiles are solar tiles, then how much do the nonsolar tiles cost to install per square foot?

A. $11.05 per square foot

B. $11.49 per square foot

C. $11.81 per square foot

D. $12.44 per square foot

6. Tesla estimates that the average cost for a solar roof would be $21.85 per square foot. What percentage of an average roof does Tesla expect would be covered in solar tiles?

A. 31%

B. 33%

C. 35%

D. 37%

7. The 2,600-square-foot Tesla roof that cost $69,100 would be eligible for a $15,500 tax federal credit. Tesla estimates that the roof would generate electricity worth $62,100 over the 30 years that it is expected to last. The solar roof tiles are much more expensive that conventual options, like $17 per square foot for slate tiles and $5 per square foot for asphalt roofs. Given that both receiving the tax credit and avoiding paying for a new asphalt roof would decrease the effective upfront cost, what would be the interest rate you'd receive investing in a solar roof? (Assume no inflation)

A. -0.4%

B. 0.5%

C. 1.4%

D. 1.8%

Based on the article "REQUIEM FOR A PINE" on page A1 of the Saturday, May 13th, Seattle Times.

7. The state's tallest pitch pine has died and will be taken down. The tree, located at the Washington Park Arboretum, was 72 years old and the circumference at the base of its trunk was 5 feet 10 inches. If the outer bark was 1 ¾ inches thick at the base of the tree, then what would be the diameter of the tree when the outer layer of bark was peeled away?

A. 17.3 inches

B. 18.9 inches

C. 20.5 inches

D. 22.3 inches

8. Examine the graphic titled "The life and times of a champion" on page A1. If the radius of the rings on the tree are directly proportional to the year they were formed, then what is the distance from the 1988 ring to the outer bark?

A. 4.3 inches

B. 5.7 inches

C. 7.1 inches

D. 11.8 inches

9. The tree was 71 feet tall and the diameter of the trunk tapered to a point at its top and decreased linearly with height so we can roughly model the tree as a cone. If the average density of the tree above ground was 30 lbs. per cubic foot, what was the total weight of the trunk that was above ground?

A. 400 pound

B. 500 pounds

C. 600 pounds

D. 700 pounds

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