

## Sum up the News – January 25<sup>th</sup>, 2016

### Vocabulary

1. The radical expression  $\sqrt{9x^3y^5}$  is equal to which of the following expressions if  $x = y^3$ ?
  - A.  $3y^3$
  - B.  $3y^7$
  - C.  $3y^{14}$
  - D.  $9y^4$
2. A parabola has an x-intercept at the point  $(-3, 0)$ . If the parabola's line of symmetry is given by the equation  $x = k$ , then which of the following points will also be an x-intercept of the parabola?
  - A.  $(k - 3, 0)$
  - B.  $(k + 3, 0)$
  - C.  $(2k, 0)$
  - D.  $(2k + 3, 0)$
3. Points F, G, and H are all on circle M, and  $\overline{MG} = 5$  units. If  $m\angle FGH = 60^\circ$ , then what is the approximate area of sector MFH?
  - A. 13.1 units<sup>2</sup>
  - B. 26.2 units<sup>2</sup>
  - C. 78.5 units<sup>2</sup>
  - D. 120 units<sup>2</sup>

**Based on the article “Earth’s heat reaching oceans’ depths” on page A1 of the Tuesday, January 19<sup>th</sup>, Seattle Times.**

4. Much of the data on the warming of the oceans comes from the Argo project, more than 4,000 floating robots around the world that hover in the ocean and periodically dive deeper to take readings on the water’s temperature and salinity at various depths. The robots generally float at a depth of 3,300 feet, but every 10 days they dive to a depth of 6,200 feet, then rise to

the surface, and then finally return to their normal depth. How many miles does each robot travel, as they dive and surface, during each year?

- A. 25 miles
- B. 40 miles
- C. 65 miles
- D. 85 miles

5. The historical data for the ocean's temperature largely come from an 1872 scientific expedition aboard the *H.M.S. Challenger*, which took hundreds of thermometer readings at depths as far down as 27,000 feet. The Argo robots cannot reach depths below 6,200 feet, but a new generation of floating robots promises to be able to reach depths of  $3\frac{1}{2}$  miles. What percentage of the 1872 expedition's depths will the newer robots reach? (1 mile = 5280 feet)

- A. 13%
- B. 23%
- C. 68%
- D. 146%

**Based on the article "2015 hottest year ever recorded, scientists say" on page A1 of the Thursday, January 21<sup>st</sup>, Seattle Times.**

6. Examine the graph titled "Warmest year on record" on page A8. What has the average annual increase in the global average temperature been since the global average temperature was last below the 20<sup>th</sup> century average?

- A. 0.039 degrees per year
- B. 0.043 degrees per year
- C. 0.047 degrees per year
- D. 0.051 degrees per year

7. The average temperature for 2015 was measured at 58.62 degrees Fahrenheit, 14.79 degrees Celsius. This was 1.62° F above the global average for the 20<sup>th</sup> century. What was the 20<sup>th</sup> century's average temperature when measured in Celsius? (Fahrenheit and Celsius are linearly related and 32° F = 0° C)

- A. 13.9° C

- B. 15.8° C
- C. 21.2° C
- D. 31.7° C

**Based on the article “Astronomers say a giant, hidden planet may exist” on page A11 of the Thursday, January 21<sup>st</sup>, Seattle Times.**

8. Due to a series of observations of distant objects far outside the earth’s orbit, computer modeling has predicted the existence of another planet in our solar system. This possible ninth planet in the solar system has yet to be seen by a telescope, or even located. The predicted planet has a volume 5,000 times larger than Pluto. If Pluto’s volume is 7 billion cubic kilometers, then what is the approximate radius of the ninth planet? (Volume of a sphere =  $\frac{4}{3}\pi * \text{radius}^3$ )

- A. 20,000 km
- B. 50,000 km
- C. 500,000 km
- D. 2,000,000,000 km

9. The ninth planet is predicted to be completing an orbit of the sun roughly every 15,000 years. If the ninth planet is 2.8 billion miles away from the sun and has a circular orbit, then how far does it travel on average each year?

- A. 190,000 miles
- B. 590,000 miles
- C. 880,000 miles
- D. 1,200,000 miles

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