

## Sum up the News – June 15<sup>th</sup>, 2015

### Vocabulary

1. Lines L and M lie on the coordinate plane and intersect at their y-intercepts. Line L has a slope of  $\frac{1}{2}$ . If vertical distance between the two lines is 8 units when  $x = 5$ , which of the following could be the slope of line M?

- A. -1.1
- B. -0.5
- C. 2
- D. 3.5

2. A triangle is bounded by the x-axis, y-axis and a line. If the line has a slope of  $\frac{4}{3}$ , and passes through the point  $(-8, 4)$ , what is area of the triangle?

- A. 64 units squared
- B.  $66\frac{2}{3}$  units squared
- C. 80 units squared
- D.  $133\frac{1}{3}$  units squared

3. An obtuse triangle's three angles measured in degrees are all integers. What is the maximum possible measure of the triangle's smallest angle?

- A.  $1^\circ$
- B.  $43^\circ$
- C.  $44^\circ$
- D.  $45^\circ$

**Based on the article “Woman sets out to row across the Pacific solo” on page A1 of the Monday, June 8<sup>th</sup>, Seattle Times.**

4. Baumstein hopes to complete the 6,000 mile journey from Choshi to San Francisco in 3 ½ months. She expects to row for an average of 15 hours per day when the weather and waves are cooperating. If the weather is calm enough for her to row 80% of the days she is at sea, then how many hours of rowing will she have done by the time she reaches San Francisco?

- A. 1100 hours of rowing
- B. 1300 hours of rowing
- C. 1600 hours of rowing
- D. 2000 hours of rowing

5. The food brought along for the voyage weighs more than 1,000 pounds. Included in the food are 900 dehydrated meals, ready be eaten after adding water. If Baumstein brought 40% more meals than she thought she would need, in case the journey goes slower than expected, then how many meals per day is she planning on eating?

- A. 5 meals per day
- B. 6 meals per day
- C. 7 meals per day
- D. 8 meals per day

6. Blumstein has a solar-powered desalination system onboard her boat that can produce 8 gallons of fresh water every hour. If Blumstein’s dehydrated meals each take 2.5 cups of water to prepare, then what percentage of her daily water reproduction will she be using for meal preparation? (1 gallon = 16 cups)

- A. 0.2%
- B. 0.5%
- C. 2%
- D. 7%

**Based on the article “Spacecraft deploys solar sail after long silences, setbacks” on page A2 of the Monday, June 8<sup>th</sup>, Seattle Times.**

7. The solar sail satellite tentatively established contact with NASA and then began the process of unfurling its sail. The four 13-foot booms, connected at the center of the sail, form the diagonals of the 345-square-foot sail. What is the perimeter of the square sail?

- A. 19 feet
- B. 26 feet
- C. 46 feet
- D. 74 feet

8. Tiny motors on the craft slowly extend the boom to their full length. After 67,000 rotations the sail had unfurled to half its length and width. After 134,200 rotations of the motor, the sail would be completed unfurled. How quickly were the motors extending the booms in inches per rotation?

- A. 0.00001 inches per rotation
- B. 0.0006 inches per rotation
- C. 0.0012 inches per rotation
- D. 0.024 inches per rotation

9. The satellite lost contact after 67,000 rotations, but NASA believes that the motors continued to function and that the solar sail would stretch out to its full 345 square-foot area. If the dimensions of the sail were proportional to how far the booms had extended, then when the satellite lost contact, what was the total area of the sail that had been deployed?

- A. 85.9 sq. ft.
- B. 103 sq. ft.
- C. 172 sq. ft.
- D. 278 sq. ft.

**Based on the article “EPA starts down long path to cut plane emissions” on page A10 of the Thursday, June 11<sup>th</sup>, Seattle Times.**

10. Aviation emissions are a growing source of global greenhouse-gas emissions. In 2020, due to increased air travel, aviation emissions are expected to be 70% higher than they are today, even if airline fuel efficiency improves by 2% each year, reducing the amount of fuel needed to transport the same number of passengers and cargo and thereby the emissions. If airlines are not able to improve their fuel efficiency, then how much higher will aviation emissions be in 2020 than they are now?

- A. 54% higher
- B. 77% higher
- C. 80% higher
- D. 88% higher

11. From 2000 to 2014, U.S. airlines were able to steadily improve the efficiency of their fleets. They carried 20% more passengers and cargo in 2014 than they did in 2000, but they used 8% less gas to do so. How much more efficient were carriers in 2014 than they were in 2000?

- A. 26% more fuel efficient
- B. 28% more fuel efficient
- C. 30% more fuel efficient
- D. 35% more fuel efficient