

## Sum up the News – March 28<sup>th</sup>, 2016

### Vocabulary

1. A parabola passes through the point  $(-4, 6)$ . The next point with the same  $y$ -value is at  $x = 8$ . Which of the following points could be the vertex of the parabola?

- A.  $(-6, 10)$
- B.  $(2, -10)$
- C.  $(2, 6)$
- D.  $(4, -10)$

2. The denominator of one fraction is 6 more than the denominator of the other. Both fractions have numerators of 1. If the smaller fraction has a denominator of  $N$ , which of the following would be the sum of the two fractions, in terms of  $N$ ?

- A.  $\frac{1}{N^2+N}$
- B.  $\frac{2N}{N^2+6N}$
- C.  $\frac{2}{2N+6}$
- D.  $\frac{2N+6}{N^2+6N}$

3. The line  $3x - 5y = 30$  is graphed on the coordinate plane. What is the tangent of the acute angle formed by the line and the  $x$ -axis?

- A.  $-5/3$
- B.  $3/5$
- C.  $4/5$
- D.  $5/3$

**Based on the article “Yakima Valley’s spring sprouts wind machines” on page A10 of the Wednesday, March 23<sup>rd</sup>, Seattle Times.**

4. Wind machines are used in orchards to prevent frost from destroying the harvests. One wind machine can be used to heat an area of 14 acres. If the area the machines heat is circular, what is the approximate diameter of the area in feet? (1 acre = 43,560 sq. ft.)

- A. 220 feet
- B. 440 feet

C. 780 feet

D. 880 feet

5. The wind machines have largely replaced the smudge pots that previously were used to heat the orchards. While the wind machines typically use propane, currently priced at \$2.30 per gallon, the smudge pots run on heating oil. It takes 40 smudge pots to heat each acre and each smudge pot uses 1 gallon per hour. If heating oil is currently \$1.90 per gallon, how much would it cost to use smudge pots to heat 14 acres for 6 hours?

A. \$1,060

B. \$3,360

C. \$4,960

D. \$6,380

6. New wind machines cost at least \$28,000. The wind machine uses just 14 gallons of propane each hour to heat up to 14 acres. If a 10-acre orchard bought a wind machine to replace its old smudge pots, after how many hours of heating would the fuel savings from using the wind machine pay for its purchase?

A. 32.3 hours

B. 36.8 hours

C. 38.5 hours

D. 42.7 hours

7. The local propane dealer in Yakima recently expanded its storage capacity from 60,000 gallons to 180,000, because it was frequently running low during multiday cold snaps. If the dealer sold 60,000 gallons of propane after three straight days of freezing temperatures, how many wind machines are in the area the dealer serves.

A. 60 wind machines

B. 120 wind machines

C. 300 wind machines

D. 800 wind machines

**Based on the article “Sound Transit to add bigger trains to meet demands” on page B1 of the Thursday, March 24<sup>th</sup>, Seattle Times.**

8. The opening of the extension to the Link Light Rail system, through Capitol Hill to the University District, has led to an increase in the daily ridership. After the opening 67,000 rode the train on Saturday, 35,000 rode on Sunday, 47,000 on Monday and 57,000 on Tuesday. Prior to the opening, there was an average ridership of 35,000 per day. Excluding the opening riders, how much higher is the daily average for the expanded system?

- A. 11,300 more daily riders
- B. 13,800 more daily riders
- C. 16,500 more daily riders
- D. 17,000 more daily riders

9. Ridership for the system has been steadily increasing and Sound transit has been experimenting with several ways to accommodate the increased numbers. This time last year, two-car trains were running every 7.5 minutes during peak commute times. Each car is designed to hold 150 riders. Now during peak times, two-car and three-car trains will alternate and the trains will run every 6 minutes. How many more people can the system transport hourly in one direction now that the train frequency and number of cars have increased?

- A. 750 more people per hour
- B. 1,350 more people per hour
- C. 2,100 more people per hour
- D. 3,750 more people per hour

10. The Link system ran a total of 92,567 trains during 2015. Approximately how many people were in each train car during those trips?

- A. 70 people per car
- B. 110 people per car
- C. 140 people per car
- D. 250 people per car

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