

Sum up the News – June 13th, 2016

Vocabulary

1. The denominator of a rational function is a quadratic equation with roots at -3 and 7. If the graph of the rational function has just one vertical asymptote, then which of the following expression could be the numerator of the rational function?

- A. $-5x + 15$
- B. $3x - 21$
- C. $4x + 8$
- D. $5x + 35$

2. A rectangle has a perimeter of 48 inches. Given that the rectangle has a width of W , which of the following expressions best represents the area of the rectangle in terms of W ?

- A. $W^2 + 48$
- B. $48W$
- C. $24W - W^2$
- D. $48W - W^2$

3. A right cylinder has a height of 10 cm and its circular faces have areas of 36 cm^2 . What is the length of the longest line segment with end points on the faces of the cylinder?

- A. 11.7 cm
- B. 12 cm
- C. 15.6 cm
- D. 16 cm

Based on the article “SEATTLE LIBRARIES GET QUIETER, BUT DIGITAL USE BOOMS” on page A1 of the Sunday, June 12th, Seattle Times.

4. While Seattle’s population has boomed in recent years, the number of visitors to the city’s libraries has decreased. From 2011 to 2014, the population grew by 50,000 people, but the number of library visitors decreased by 150,000, a 2.3% drop. Seattle residents averaged how many library visits in 2014?

- A. 1.1 visits per year
- B. 3.5 visits per year
- C. 9.7 visits per year
- D. 13.6 visits per year

5. The decreasing visitation of physical library branches is a national trend. While 53% of all Americans visited a library branch in 2012, last year just 44% did. If the percentage of Americans visiting libraries each year is best modeled using an exponential decay function, then by what rate is the percentage of American who visit libraries decreasing each year?

- A. 3% decrease each year
- B. 6% decrease each year
- C. 9% decrease each year
- D. 17% decrease each year

Based on the article “HARDWARE IN PLAY” on page D1 of the Sunday, June 12th, Seattle Times.

6. Sony has been dominating the home console market recently, selling 54% of all consoles sold last year. Microsoft and Nintendo accounted for just 28% and 8% respectively. If a pie chart was used to display the console sales last year just from Sony, Microsoft and Nintendo, what would be the central angle of the sector representing The Xbox One?

- A. 31°
- B. 61°
- C. 100°
- D. 112°

7. Examine the graph titled “Sony on top” on page D1. If S equals market share and y = year, then which of the following linear equations best model the market share of Nintendo consoles since 2009?

A. $S = -4.5(2011 - Y) + 35$

B. $S = -4.8(Y - 2009) + 45$

C. $S = -5.2(Y + 2011) + 47$

D. $S = -5.2(Y - 2011) + 48$

Based on the article “Bigger canal passes first big test” on page D4 of the Sunday, June 12th, Seattle Times.

8. The expansion of the Panama Canal is nearing completion and test runs are now taking place. The expansion will increase the size of the ships that use the Canal, thereby bypassing a trip south to pass from the Atlantic into the Pacific or vice versa. Last year the Canal was used by 2,200 vessels per day, carrying a total of 13 billion cubic feet of cargo. Approximately how many cubic feet of cargo did the ships have on average?

A. 16,200 cubic feet per vessel

B. 134,000 cubic feet per vessel

C. 470,000 cubic feet per vessel

D. 5,900,000 cubic feet per vessel

9. The New Panamax ships can be up to 1200 feet long, are 53% wider and have had their allowable height increased by 4.5%. If the volume of the ships has doubled and the ships are roughly rectangular solids in shape, then how long are the older Panamax ships?

A. 870

B. 945

C. 955

D. 970

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