1986 Q1

1. In July 1861, 366 inches of rain fell in Cherrapunji, India. What was the average rainfall in inches per hour during that month?

A) $\frac{366}{31\times24}$ B) $\frac{366\times31}{24}$ C) $\frac{366\times24}{31}$

D) $\frac{31\times24}{366}$ E) $366\times31\times24$

1. (A) The average rainfall per hour equals the total rainfall divided by the total number of hours. Since July has 31 days, the average is $\frac{366}{31\times24}$ inches per hour.

2006 Q3

3. Elisa swims laps in the pool. When she first started, she completed 10 laps in 25 minutes. Now she can finish 12 laps in 24 minutes. By how many minutes has she improved her lap time?

(A) $\frac{1}{2}$ **(B)** $\frac{3}{4}$ **(C)** 1 **(D)** 2 **(E)** 3

3. **(A)** When Elisa started, she completed a lap in $\frac{25}{10} = 2.5$ minutes. Now she can complete a lap in $\frac{24}{12} = 2$ minutes. She has improved her lap time by $2.5-2 = 0.5$ or $\frac{1}{2}$ minute.

2014 Q3

3. Isabella had a week to read a book for a school assignment. She read an average of 36 pages per day for the first three days and an average of 44 pages per day for the next three days. She then finished the book by reading 10 pages on the last day. How many pages were in the book?

(A) 240 **(B)** 250 **(C)** 260 **(D)** 270 **(E)** 280

3. **Answer (B):** The number of pages in the book is

$$3 \cdot 36 + 3 \cdot 44 + 10 = 3(36 + 44) + 10 = 3 \cdot 80 + 10 = 250.$$

2015 Q3

3. Jack and Jill are going swimming at a pool that is one mile from their house. They leave home simultaneously. Jill rides her bicycle to the pool at a constant speed of 10 miles per hour. Jack walks to the pool at a constant speed of 4 miles per hour. How many minutes before Jack does Jill arrive?

(A) 5 **(B)** 6 **(C)** 8 **(D)** 9 **(E)** 10

3. **Answer (D):** Jill takes $\frac{1}{10}$ of an hour, or 6 minutes, to get to the pool, and Jack takes $\frac{1}{4}$ of an hour, or 15 minutes, so Jill arrives $15 - 6 = 9$ minutes before Jack.

1997 Q4

4. Julie is preparing a speech for her class. Her speech must last between one-half hour and three-quarters of an hour. The ideal rate of speech is 150 words per minute. If Julie speaks at the ideal rate, which of the following number of words would be an appropriate length for her speech?

(A) 2250 **(B)** 3000 **(C)** 4200 **(D)** 4350 **(E)** 5650

4. **(E)** For one-half hour: 30 min. x 150 words/min. = 4500 words and for three-quarters of an hour: 45 min. x 150 words/min. = 6750 words. Only 5650 falls in this interval.

2016 Q4

4. When Cheenu was a boy he could run 15 miles in 3 hours and 30 minutes. As an old man he can now walk 10 miles in 4 hours. How many minutes longer does it take for him to walk a mile now compared to when he was a boy?

(A) 6 **(B)** 10 **(C)** 15 **(D)** 18 **(E)** 30

4. Answer (B):

As a boy it took Cheenu 3 hours and 30 minutes, which is 210 minutes, to go 15 miles. That is a rate of $210 \div 15 = 14$ minutes per mile. As an old man it takes him 4 hours, or 240 minutes, to travel 10 miles. That is a rate of $240 \div 10 = 24$ minutes per mile. It takes him $24 - 14 = 10$ minutes more to walk a mile as an old man.

1994 Q5

5. Given that 1 mile = 8 furlongs and 1 furlong = 40 rods, the number of rods in one mile is

(A) 5 (B) 320 (C) 660 (D) 1760 (E) 5280

5. **Answer (E):** Barney rides $1661 - 1441 = 220$ miles in 10 hours, so his average speed is $\frac{220}{10} = 22$ miles per hour.

2001 Q5

5. On a dark and stormy night Snoopy suddenly saw a flash of lightning. Ten seconds later he heard the sound of thunder. The speed of sound is 1088 feet per second and one mile is 5280 feet. Estimate, to the nearest half-mile, how far Snoopy was from the flash of lightning.

(A) 1 (B) $1\frac{1}{2}$ (C) 2 (D) $2\frac{1}{2}$ (E) 3

5. (C) Use the formula $d = rt$ (distance equals rate times time): 1088 feet per second $\times 10$ seconds $= 10880$ feet, which is just 320 feet more than two miles. Therefore, Snoopy is just about two miles from the flash of lightning.

OR

Since this is an estimate, round the speed of sound down to 1000 feet per second and the length of a mile down to 5000 feet. Then $5000 \div 1000 = 5$ seconds per mile, so in 10 seconds the sound will travel about 2 miles.