Name: _____

N.Q.A.2: Using Rate 1b

1 Patricia is trying to compare the average rainfall of New York to that of Arizona. A comparison between these two states for the months of July through September would be best measured in
1) feet per hour
2) inches per hour
3) inches per month
4) feet per month

2 A student spent 15 minutes painting a 2-foot by 3-foot bulletin board. To the *nearest tenth of a minute*, how long did it take the student to paint 1 square foot?

3 A cell phone can receive 120 messages per minute. At this rate, how many messages can the phone receive in 150 seconds?

4 Nicole's aerobics class exercises to fast-paced music. If the rate of the music is 120 beats per minute, how many beats would there be in a class that is 0.75 hour long?

5 A car uses one gallon of gasoline for every 20 miles it travels. If a gallon of gasoline costs $3.98, how much will the gas cost, to the *nearest dollar*, to travel 180 miles?

6 Joseph typed a 1,200-word essay in 25 minutes. At this rate, determine how many words he can type in 45 minutes.

7 Tom drove 290 miles from his college to home and used 23.2 gallons of gasoline. His sister, Ann, drove 225 miles from her college to home and used 15 gallons of gasoline. Whose vehicle had better gas mileage? Justify your answer.

8 A two-inch-long grasshopper can jump a horizontal distance of 40 inches. An athlete, who is five feet nine, wants to cover a distance of one mile by jumping. If this person could jump at the same ratio of body-length to jump-length as the grasshopper, determine, to the *nearest jump*, how many jumps it would take this athlete to jump one mile.

9 The distance traveled is equal to the rate of speed multiplied by the time traveled. If the distance is measured in feet and the time is measured in minutes, then the rate of speed is expressed in which units? Explain how you arrived at your answer.

N.Q.A.2: Using Rate 1b
Answer Section

1 ANS: 3   REF: 081609ai

2 ANS:
2.5

$$\frac{15}{2 \times 3} = 2.5$$

REF: 011509ia

3 ANS:
300

$$\frac{120}{60} = \frac{m}{150}$$

$$m = 300$$

REF: 081202ia

4 ANS:
5,400

0.75 hours = 45 minutes. $\dfrac{120}{1} = \dfrac{x}{45}$

$$x = 5400$$

REF: 080814ia

5 ANS:
36

$$\frac{20}{3.98} = \frac{180}{x}$$

$$20x = 716.4$$

$$x = 35.82 \approx 36$$

REF: 011302ia

6 ANS:

2,160 $\dfrac{1,200}{25} = \dfrac{x}{45}$

$$25x = 54,000$$

$$x = 2,160$$

REF: 081032ia

7 ANS:

Ann's. $\dfrac{225}{15} = 15$ mpg is greater than $\dfrac{290}{23.2} = 12.5$ mpg

REF: 060831ia

8 ANS:

$$\frac{2}{40} = \frac{5.75}{x} \qquad \frac{5280}{115} \approx 46$$

$$x = 115$$

REF: 081730ai

9 ANS:

The rate of speed is expressed in $\frac{\text{feet}}{\text{minute}}$ because speed=$\frac{\text{distance}}{\text{time}}$.

REF: 011827ai