Name _____ Date _____

Heart Rate and Exercise: Reading Class Data

Directions: Read the passage and study the table. Then answer each question.

Counting Pulses

Your heart is a muscle that pumps blood through your body. Each time it squeezes, it sends a wave of blood through your arteries. You can feel this wave as a pulse on the inside of your wrist or on the side of your neck. Your heart rate is the number of times your heart beats in one minute.

When you exercise, your muscle cells work harder. They need more oxygen and make more carbon dioxide. Your heart beats faster, so blood moves through your body more quickly. It brings oxygen to the muscles and carries carbon dioxide away. After you stop, your heart rate slowly drops back toward its resting rate.

A class measured how exercise changed their heart rates. Each student first sat quietly for 5 minutes. Then they found their pulse and counted the beats for 15 seconds. They multiplied that count by 4 to get beats per minute. Next, each student did jumping jacks for 1 minute. They counted their pulse right after stopping, and again while sitting, 1 minute and 3 minutes after stopping. The table shows six students' results.

Heart rates of six students, in beats per minute

Student	Resting (beats per minute)	Right after jumping jacks (beats per minute)	1 minute after stopping (beats per minute)	3 minutes after stopping (beats per minute)
1	72	132	104	84
2	80	144	116	92
3	68	124	96	76
4	84	148	124	96
5	76	136	108	80
6	76	144	112	88

1. Student 3's resting heart rate in the table is 68 beats per minute. Using the class's method from the passage, how many beats did Student 3 count in 15 seconds?

_____ beats

2. Why did every student do the same exercise for the same amount of time?

A. So that the class could compare and combine everyone's results fairly

B. So that everyone's heart rate would end up the same

C. So that the jumping jacks would not change anyone's heart rate

D. Because a pulse can be found only after jumping jacks

3. What was the mean resting heart rate of the six students?

_____ beats per minute

4. Which student's heart rate rose the most from resting to right after the jumping jacks?

A. Student 4 B. Student 2 C. Student 6 D. Student 3

5. By how many beats per minute did the six students' mean heart rate rise from resting to right after the jumping jacks?

_____ beats per minute

6. According to the passage, why does the heart beat faster during exercise?

A. Because the heart rests between workouts and must catch up

B. To move blood more quickly, bringing oxygen to working muscles and carrying carbon dioxide away

C. Because the lungs stop working during exercise

D. To pump carbon dioxide into the working muscles

7. Which of these pairs of measurements shows the largest drop in the six students' mean heart rate?

A. From resting to 3 minutes after stopping

B. From resting to right after the jumping jacks

C. From 1 minute after stopping to 3 minutes after stopping

D. From right after the jumping jacks to 1 minute after stopping

8. Which claim does the evidence from these six students support?

A. For these six students, every heart rate rose after the jumping jacks and had dropped partway back toward resting 3 minutes later.

B. Jumping jacks raise every person's heart rate to about 140 beats per minute.

C. For these six students, every heart rate was back to resting 1 minute after stopping.

D. For these six students, those with the highest resting heart rates had the smallest increases.

9. Suppose the class measured again 10 minutes after stopping. Based on the table and the passage, what would the six students' mean heart rate most likely be?

A. About 138 beats per minute, as high as right after the jumping jacks

B. Far below the resting mean, because the heart rests after exercise

C. Lower than 86 beats per minute and close to the resting mean of 76

D. Higher than 86 beats per minute, because heart rate keeps rising after exercise stops