Number Sets

Name: _____ **Date:** _____

1. Given: $\frac{\sqrt{99}}{11}, \sqrt{164}, \sqrt{196}$

   Identify the expression that is a rational number and explain why it is rational.

2. Given:

   $L = \sqrt{2}$
   $M = 3\sqrt{3}$
   $N = \sqrt{16}$
   $P = \sqrt{9}$

   Which expression results in a rational number?

   A. $L + M$ B. $M + N$ C. $N + P$ D. $P + L$

3. Which statement is *not* always true?

   A. The product of two irrational numbers is irrational.

   B. The product of two rational numbers is rational.

   C. The sum of two rational numbers is rational.

   D. The sum of a rational number and an irrational number is irrational.

4. Ms. Fox asked her class "Is the sum of 4.2 and $\sqrt{2}$ rational or irrational?" Patrick answered that the sum would be irrational.

   State whether Patrick is correct or incorrect. Justify your reasoning.

5. Which statement is *not* always true?

A. The sum of two rational numbers is rational.

B. The product of two irrational numbers is rational.

C. The sum of a rational number and an irrational number is irrational.

D. The product of a nonzero rational number and an irrational number is irrational.

6. Determine if the product of $3\sqrt{2}$ and $8\sqrt{18}$ is rational or irrational. Explain your answer.

7. Is the sum of $3\sqrt{2}$ and $4\sqrt{2}$ rational or irrational? Explain your answer.

8. For which value of P and W is $P + W$ a rational number?

A. $P = \frac{1}{\sqrt{3}}$ and $W = \frac{1}{\sqrt{6}}$

B. $P = \frac{1}{\sqrt{4}}$ and $W = \frac{1}{\sqrt{9}}$

C. $P = \frac{1}{\sqrt{6}}$ and $W = \frac{1}{\sqrt{10}}$

D. $P = \frac{1}{\sqrt{25}}$ and $W = \frac{1}{\sqrt{2}}$