Closed Operations

Part I - Identify the numbers below as RATIONAL or IRRATIONAL

Number	Rational or Irrational?	Reason for your conclusion.
5		
$\sqrt{5}$		
$\frac{1}{8}$		
$\frac{1}{3}$		
2.312		
$\sqrt{49}$		
$2^{2/3}$		
$8^{2/3}$		
$\sqrt[3]{27}$		
π		

Part II - The number 10 is a rational number. Add each of the values above to 10 and classify the result

Number	Rational or Irrational?	Reason for your conclusion.
10 + 5		
$10 + \sqrt{5}$		
$10 + \frac{1}{8}$		
$10 + \frac{1}{3}$		
10 + 2.312		
$10 + \sqrt{49}$		
$10 + 2^{2/3}$		
$10 + 8^{2/3}$		
$10 + \sqrt[3]{27}$		
$10 + \pi$		

Part III - The number 10 is a rational number. Multiply each of the values above to 10 and classify the result

Number	Rational or Irrational?	Reason for your conclusion.
$10 \cdot 5$		
$10 \cdot \sqrt{5}$		
$10 \cdot \frac{1}{8}$		
$10 \cdot \frac{1}{3}$		
$10 \cdot 2.312$		
$10 \cdot \sqrt{49}$		
$10 \cdot 2^{2/3}$		
$10 \cdot 8^{2/3}$		
$10 \cdot \sqrt[3]{27}$		
$10 \cdot \pi$		

Complete the statements below based on your finding from Part I,II and III.

The **sum** of two **rational** numbers is a(n) _____ number.

The **sum** of a **rational** number and an **irrational** number is a(n) _____ number.

The **product** of two **rational** numbers is a(n) _____ number.

The **product** of a **rational** number and an **irrational** number is a(n) _____ number.