

Ma104: Mathematics for Business Major

Tutorial 1 (Answer)

1. Given $A = \{2, 3, 5, 7\}$, $B = \{2, 4, 6, 8, 10\}$ and $C = \{1, 3, 5, 7, 9\}$.

A) $A \cap B = \{2, 3, 4, 5, 6, 7, 8, 10\}$

B) $A \cap C = \{3, 5, 7\}$

C) $B \cap C = \emptyset$

D) $A \cap C = \{1, 2, 3, 5, 7, 9\}$

E) $(C \cap \emptyset) \cap B = \emptyset$

F) $B \cap (C \cap C) = \{2, 4, 6, 8, 10\}$

G) $(A \cap B) \cap C = \{3, 5, 7\}$

H) $(A \cap B) \cap C = \{1, 2, 3, 5, 7, 9\}$

2. Given a set $\{-3, 0, 1, 2, 9, \frac{2}{3}, \sqrt{3}\}$, which element satisfy the following condition.

A) Natural Number $\{1, 2, 9\}$

B) Whole Number $\{0, 1, 2, 9\}$

C) Integer $\{-3, 0, 1, 2, 9\}$

D) Rational Number $\{-3, 0, 1, 2, 9, \frac{2}{3}\}$

E) Irrational Number $\{\sqrt{3}\}$

F) Real Number $\{-3, 0, 1, 2, 9, \frac{2}{3}, \sqrt{3}\}$

G) Even Natural Number $\{2\}$

H) Odd Integer $\{-3, 1, 9\}$

I) Prime Number $\{2\}$

J) Composite Number $\{9\}$

K) Odd Composite Number $\{9\}$

L) Even Prime Number $\{2\}$

3. Prove that $a(b + c) = ca + ba$.

$$a(b + c) = ab + ac \quad (\text{The Distributive Property})$$

$$= ac + ab \quad (\text{Commutative Property of Addition})$$

$$= ca + ab \quad (\text{Commutative Property of Multiplication})$$

$$= ca + ba \quad (\text{Commutative Property of Multiplication})$$

4. Approximate the number 18.9526.

A) Round to three decimal places $\{18.953\}$

B) Truncated to three decimal places $\{18.952\}$

5. What rational number does the repeating decimal 0.2 54 54 54 54 equal?

$$\text{Let } x = 0.2\ 54\ 54\ 54\ 54\ \dots \quad (1)$$

$$\text{Then } 100x = 25.4\ 54\ 54\ 54\ \dots \quad (2)$$

$$(2) - (1) \quad 100x = 25.4\ 54\ 54\ 54\ 54$$

$$\quad \quad \quad \underline{x = 0.2\ 54\ 54\ 54\ 54}$$

$$99x = 25.2$$

$$x = \frac{25.2}{99}$$

$$x = \frac{14}{55}$$

The rational number of repeating decimal 0.2 54 54 54 ... is 14/55.