

MATH3 (814013) – SPRING 2007

QUIZ (1) – M20

Question (1): (4 points) Circle the correct answer:

(1) $\{x : -5 < x \leq 0, x \in N\} =$

- (A) \emptyset (B) $\{0\}$ (C) $\{-9, -8, -7, -6, -5, -4, -3, -2, -1, 0\}$ (D) $\{\emptyset\}$

(2) The set of whole numbers between -4 and 3:

- (A) $\{1, 2\}$ (B) $\{1, 2, 3\}$ (C) $\{0, 1, 2, 3\}$ (D) $\{0, 1, 2\}$

(3) $\{x : 3x + 2 = 4, x \in Z\} =$

- (A) $\left\{\frac{5}{2}\right\}$ (B) $\left\{\frac{3}{2}\right\}$ (C) \emptyset (D) $\{2\}$

(4) Indicate which of the following is true:

- (A) $N \subset I$ (B) $W \subseteq Q$ (C) $I \cap Q = Q$ (D) $I \cap Q = R$

Question (2): (4 points) What is wrong in the following statements: (Correct it)

(1) $3 \subseteq W$

(2) $\{x : x^2 = 4\} = \emptyset$

(3) $\{5\} \in \{3, 5, 7\}$

(4) All integers are natural numbers.

Question (3): (4 points) Determine whether the following statements are **true** or **false**.

(1) Let $\Omega = \{F, M\}$, where $F = \{3, 5\}$ and $M = \{1\}$. The set Ω contains three elements. ()

(2) If $ab = 1$, then either a or b have to be 1. ()

(3) The set W (whole numbers) is an infinite set. ()

(4) $\sqrt{7}, 2\pi, \frac{2}{0}$ are irrational numbers. ()

Question (4): (4 points) Determine whether each number listed in the table below is a member of each set listed on the side of the table:

	$\sqrt[5]{3}$	$\frac{\sqrt{16}}{2}$	$3\bar{3}$	$\frac{7\pi}{5}$	$\frac{-3.6}{3}$	$\frac{9}{0}$
Natural						
Irrational						
Integer						
Rational						

Question (5): (5 points) Let $A = \{f, h, k\}$, $B = \{h, t, r, u\}$ and $C = \{t, r, u\}$

(1) Use one of the symbols: $\in, \notin, \subseteq, \not\subseteq, =, \neq, \cup, \cap$, in each blank to make true statement:

t _____ C	t _____ A	B _____ C
A _____ $C = \phi$	C _____ $\phi = C$	$\{u\}$ _____ C

(2) Find all subsets of the set $C = \{t, r, u\}$.