MEMO 2015-9ℰA-00003(1)

NO CALCULATOR MAY BE USED!

(1) Complete the following table by making a ✓ in the appropriate column(s) to which each number belongs:

		$\mathbb{N}$	$\mathbb{N}_0$	$\mathbb{Z}$	$\mathbb{Q}$	$\mathbb{Q}'$	$\mathbb{R}$
(a)	$3\frac{3}{4}$				✓		✓
(b)	$\sqrt[5]{-32} = -2$			✓	✓		✓
(c)	-18,5				✓		✓
(d)	$\sqrt{18}$					✓	✓
(e)	0		✓	✓	✓		✓
(f)	$8,\dot{3}$				✓		✓

(2) Express each of the following as a common fraction in its simplest form:

(a) $-2,\overline{35}$

$= -2,\dot{3}\dot{5}$

$= -2\frac{35}{99}$

(b) $14,45$

$= 14\frac{45}{100}$

$= 14\frac{45 \div 5}{100 \div 5}$

$= 14\frac{9}{20}$

(3) Consider: $A = \dfrac{\sqrt{k+6}}{k^2}$

Determine for which value(s) k will A be (i) undefined?
(ii) real?

(i) **Undefined if the nominator is equal to 0.**

$\therefore \quad k^2 = 0$

$\therefore \quad k = 0$

(ii) **Real if $\sqrt{\geq 0}$**

$\therefore \quad k + 6 \geq 0$

$\therefore \quad k \geq -6$

(4) Consider the following set: $\left\{18\,;\ \sqrt{81}\ ;\ -\frac{18}{4}\ ;\ (-4)^2\ ;\ \frac{0}{-6}\ ;\ 9,\dot{2}\right\}$

(a) (a) Write the numbers in numerical **(from lowest to highest)** order.

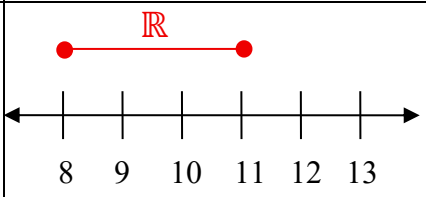
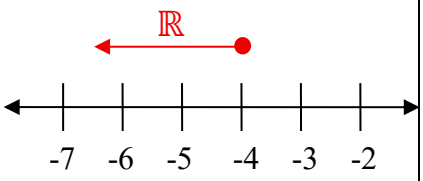
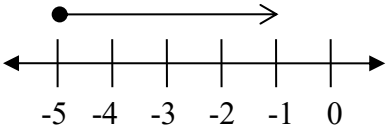
$18\,;\ \sqrt{81} = 9\,;\ -\frac{18}{4} = -4\frac{2}{4} = -4\frac{1}{2}\ ;\ (-4)^2 = 16\,;\ \frac{0}{-6} = 0\,;\ 9,\dot{2}$

$\therefore \quad -\frac{18}{4}\,;\ \frac{0}{-6}\,;\ \sqrt{81}\ ;\ 9,\dot{2}\,;\ (-4)^2\,;\ 18$

(b) (b) Write down the Irrational numbers.

$\therefore$ **No Irrational numbers**

(5) Complete the following table:

	Set builder notation:	Interval notation:	Graphic representation:
(a)	$\{m \,/ 8 \leq m \leq 11 \,; m \in \mathbb{R}\}$	$\boldsymbol{m \in [8\,;11]}$	
(b)	$\boldsymbol{\{k \,/\, k \leq -4\,; k \in \mathbb{R}\}}$	$k \in (-\infty\,; -4]$	
(c)	$\boldsymbol{\{x \,/\, x \geq -5\,; x \in \mathbb{R}\}}$	$\boldsymbol{x \in [-5\,;\, \infty)}$	
(d)	$\{y \,/\, y > 0\,; y \in \mathbb{Z}\}$	**No interval notation for $\mathbb{Z}$**