Exercise 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) $-2,\overline{35}$ (b) $14{,}45$

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

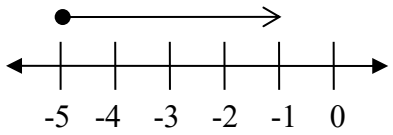
Determine for which value(s) $k$ will A be (i) undefined?
(ii) real?

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

(a) Write the numbers in numerical order.

(b) Write down the Irrational numbers.

(5) Complete the following table:

| | Set builder notation: | Interval notation: | Graphic representation: |
|---|---|---|---|
| (a) | $\{m \,/ 8 \leq m \leq 11 \,; m \in \mathbb{R}\}$ | | |
| (b) | | $k \in (-\infty \,; -4]$ | |
| (c) | | |   |
| (d) | $\{y \,/\, y > 0 \,; y \in \mathbb{Z}\}$ | | |