

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

|     |                      | N | $N_0$        | Z            | Q            | Q'           | R            |
|-----|----------------------|---|--------------|--------------|--------------|--------------|--------------|
| (a) | $3\frac{3}{4}$       |   |              |              | $\checkmark$ |              | $\checkmark$ |
| (b) | $\sqrt[5]{-32} = -2$ |   |              | $\checkmark$ | $\checkmark$ |              | $\checkmark$ |
| (c) | -18,5                |   |              |              | $\checkmark$ |              | $\checkmark$ |
| (d) | $\sqrt{18}$          |   |              |              |              | $\checkmark$ | $\checkmark$ |
| (e) | 0                    |   | $\checkmark$ | $\checkmark$ | $\checkmark$ |              | $\checkmark$ |
| (f) | $8,\dot{3}$          |   |              |              | $\checkmark$ |              | $\checkmark$ |

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

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

(b)  $14,45$

Let  $-2,\overline{35} = x$

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

$\therefore 100x = -235,3535\dots$

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

$-$   $10x = -2,3535\dots$

$99x = -233$

$x = \frac{-233}{99}$

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

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

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

(i) Undefined  $\rightarrow$  denominator  $= 0$

$$\therefore k^2 = 0$$

$$\therefore k = 0$$

(ii) Real  $\rightarrow \sqrt{\quad}$   $\rightarrow k+6 \geq 0$

$$\therefore k \geq -6$$

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

$\rightarrow$  ascending order!

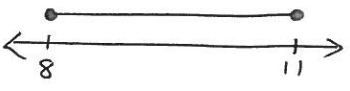
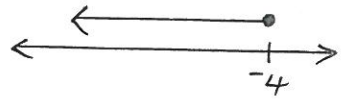
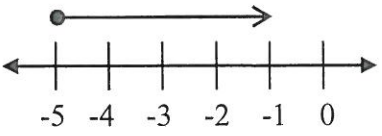
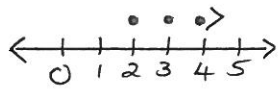
(a) Write the numbers in numerical order.

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

(b) Write down the Irrational numbers.

None

(5) Complete the following table:

|     | Set builder notation:                         | Interval notation:     | Graphic representation:                                                               |
|-----|-----------------------------------------------|------------------------|---------------------------------------------------------------------------------------|
| (a) | $\{m / 8 \leq m \leq 11 ; m \in \mathbb{R}\}$ | $m \in [8 ; 11]$       |    |
| (b) | $\{k / k \leq -4 ; k \in \mathbb{R}\}$        | $k \in (-\infty ; -4]$ |    |
| (c) | $\{x / x \geq -5 ; x \in \mathbb{R}\}$        | $x \in [-5 ; \infty)$  |    |
| (d) | $\{y / y > 0 ; y \in \mathbb{Z}\}$            | None                   |  |