

NO CALCULATOR MAY BE USED!

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

		N	$\mathbb{N}_0$	$\mathbb{Z}$	$\mathbb{Q}$	$\mathbb{Q}'$	$\mathbb{R}$
(a)	$-5,52 \dots$					✓	✓
(b)	$\sqrt[3]{-8} = -2$			✓	✓		✓
(c)	$\frac{3}{7}$				✓		✓
(d)	113	✓	✓	✓	✓		✓
(e)	$\sqrt{\frac{12}{4}} = \sqrt{3}$					✓	✓
(f)	π					✓	✓
(g)	-292			✓	✓		✓
(h)	$\frac{0}{5} = 0$		✓	✓	✓		✓
(i)	$\sqrt[4]{64} = 2,828 \dots$					✓	✓
(j)	$(\sqrt{7})^2 = 7$	✓	✓	✓	✓		✓

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

(a) $2,3\dot{2}$

$$= 23, \dot{2} \div 10 \quad \text{or} \quad = 2 + 0,3 + 0,0\dot{2}$$

$$= 23 \frac{2}{9} \div \frac{10}{1}$$

$$= \frac{209}{9} \times \frac{1}{10}$$

$$= \frac{209}{90}$$

$$= 2 \frac{29}{90}$$

$$= 2 + 0,3 + 0, \dot{2} \div 10$$

$$= 2 + \frac{3}{10} + \frac{2}{9} \times \frac{1}{10}$$

$$= 2 + \frac{3 \times 9}{10 \times 9} + \frac{2}{90}$$

$$= 2 + \frac{27 + 2}{90}$$

$$= 2 \frac{29}{90}$$

(b) $0, \dot{5} \dot{1}$

$$= \frac{51}{99}$$

$$= \frac{51}{99} \div \frac{3}{3}$$

$$= \frac{17}{33}$$

$$(c) \quad 2,45$$

$$= 2 \frac{45}{100}$$

$$= 2 \frac{45 \div 5}{100 \div 5}$$

$$= 2 \frac{9}{20}$$

$$(d) \quad \sqrt{0,64}$$

$$= \sqrt{\frac{64}{100}}$$

$$= \frac{\sqrt{64}}{\sqrt{100}}$$

$$= \frac{8}{10}$$

$$= \frac{8 \div 2}{10 \div 2}$$

$$= \frac{4}{5}$$

(3) Determine between which two integers the following irrational number will lie:

$$(a) \quad -\sqrt{27}$$

$$-\sqrt{36} < -\sqrt{27} < -\sqrt{25}$$

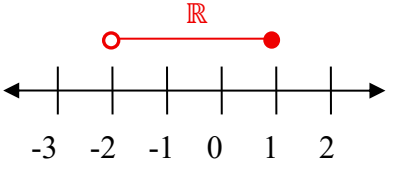
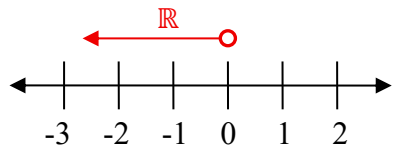
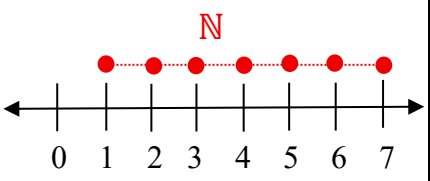
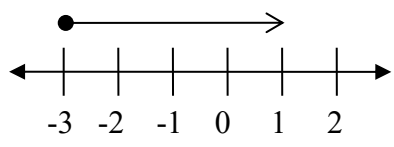
$$\therefore -6 < -\sqrt{27} < -5$$

$$(b) \quad \sqrt[3]{84}$$

$$\sqrt[3]{64} < \sqrt[3]{84} < \sqrt[3]{125}$$

$$\therefore 4 < \sqrt[3]{84} < 5$$

(4) Complete the following table:

	Set builder notation:	Interval notation:	Graphic representation:
(a)	$\{x / -2 < x \leq 1 ; x \in \mathbb{R}\}$	$x \in (-2 ; 1]$	
(b)	$\{y / y < 0 ; y \in \mathbb{R}\}$	$y \in (-\infty ; 0)$	
(c)	$\{m / m \leq 7 ; m \in \mathbb{N}\}$	No interval notation	
(d)	$x / x \geq -3 ; x \in \mathbb{R}\}$	$x \in [-3 ; \infty)$	
(e)	$\{k / k \geq 7 ; k \in \mathbb{N}\}$ or $\{k / k > 6 ; k \in \mathbb{N}_0\}$ or $\mathbb{Z}$	No interval notation	