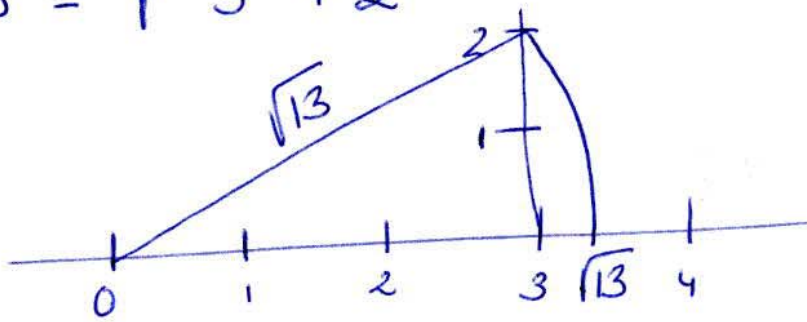
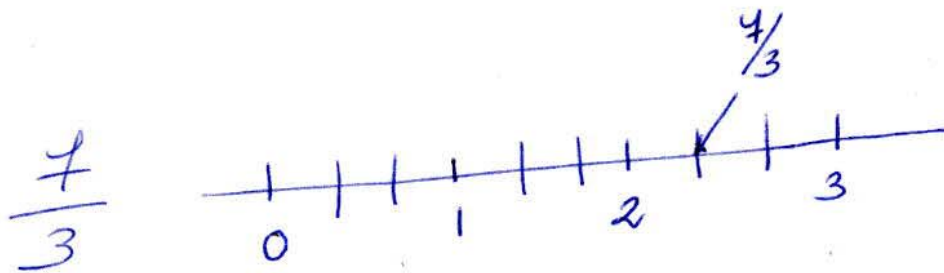
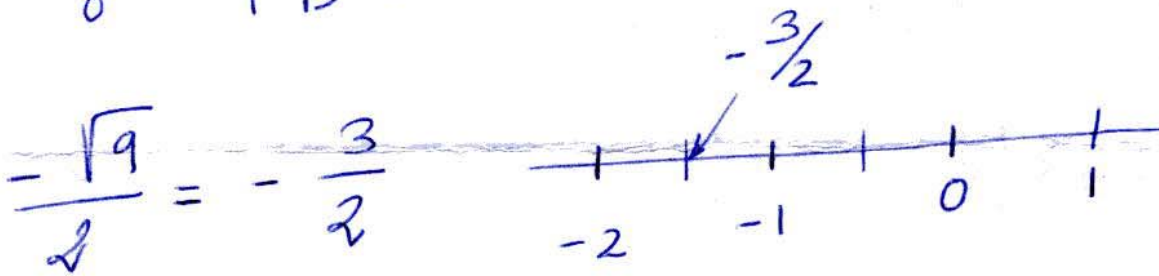
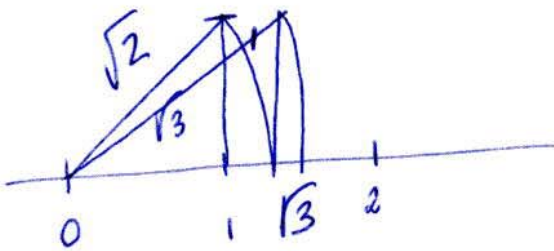


$$\textcircled{1} \quad \sqrt{13} = \sqrt{3^2 + 2^2}$$



$$\sqrt{3} = \sqrt{(\sqrt{2})^2 + 1^2} \quad \Rightarrow \quad \sqrt{2} = \sqrt{1^2 + 1^2}$$



2

$$\frac{\sqrt[5]{X^4 \cdot Y^3} \cdot \sqrt{X^7 \cdot 2^6 \cdot Y^3} \cdot \sqrt[3]{2^4 \cdot Y^8}}{\sqrt[3]{2^7} \cdot \sqrt[5]{2^3 \cdot X^7}}$$

$$\frac{4 \frac{4}{10} X \quad 3 \frac{3}{10} X \quad 7 \frac{7}{2} X \quad 6 \frac{6}{2} Y \quad 3 \frac{3}{2} Y \quad 4 \frac{4}{3} Y \quad 8 \frac{8}{3} Y}{3 \frac{3}{2} Y \quad 2 \frac{7}{2} X \quad 2 \frac{3}{5} X \quad 2 \frac{7}{5} Y}$$

$$= X \frac{4}{10} + \frac{7}{2} - \frac{7}{5} \quad \frac{3}{10} + \frac{3}{2} + \frac{8}{3} - \frac{3}{2}$$

$$= X \frac{4+35-14}{10} \quad \frac{9+80}{30}$$

$$= X \frac{25}{10} \quad \frac{75+40-105-18}{30}$$

$$= X \frac{5}{2} \quad - \frac{4}{15}$$

$$= X \frac{5}{2} - \frac{4}{15}$$

$$= X \frac{25}{10} \quad \frac{89}{30}$$

$$= X \frac{5}{2} \quad \frac{89}{30}$$

$$= X \frac{5}{2} - \frac{4}{15}$$

$$= X \frac{5}{2} - \frac{4}{15}$$

$$\textcircled{3} \text{ a) } \frac{3}{-3+\sqrt{2}} = \frac{3}{-3+\sqrt{2}} \cdot \frac{-3-\sqrt{2}}{-3-\sqrt{2}} = \frac{-9-3\sqrt{2}}{(-3)^2 - (\sqrt{2})^2} =$$

$$= \frac{-9-3\sqrt{2}}{9-2} = \frac{-9-3\sqrt{2}}{7}$$

$$\text{b) } \frac{\sqrt{7}-\sqrt{2}}{\sqrt{2}+\sqrt{7}} = \frac{\sqrt{7}-\sqrt{2}}{\sqrt{2}+\sqrt{7}} \cdot \frac{\sqrt{2}-\sqrt{7}}{\sqrt{2}-\sqrt{7}} = \frac{\sqrt{14}-\sqrt{49}-\sqrt{4}+\sqrt{14}}{(\sqrt{2})^2 - (\sqrt{7})^2} =$$

$$= \frac{2\sqrt{14}-7-2}{2-7} = \frac{2\sqrt{14}-9}{-5} = \frac{9-2\sqrt{14}}{5}$$

$$\text{c) } \frac{-7}{\sqrt[6]{5^7}} = \frac{-7}{\sqrt[6]{5^7}} \cdot \frac{\sqrt[6]{5^5}}{\sqrt[6]{5^5}} = \frac{-7\sqrt[6]{5^5}}{\sqrt[6]{5^{12}}} = \frac{-7\sqrt[6]{5^5}}{25}$$

$$\textcircled{4} \quad 4\overline{53} + 7\overline{41} - 3\overline{45} = \frac{449}{99} + \frac{734}{99} - \frac{311}{90} =$$

$$4\overline{53} = \frac{453-4}{99} = \frac{449}{99}$$

$$7\overline{41} = \frac{741-7}{99} = \frac{734}{99}$$

$$3\overline{45} = \frac{345-34}{90} = \frac{311}{90}$$

$$= \frac{4490 + 7340 - 3421}{990} = \frac{8409}{990} =$$

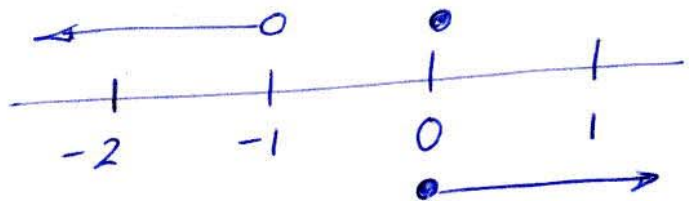
$$\frac{2803}{330} = \underline{\underline{8\overline{493}}}$$

⑤ a)

$$A = \{x \in \mathbb{R} \mid x < -1\}$$

$$B = \{x \in \mathbb{R} \mid 0 \leq x\}$$

$$A = (-\infty, -1)$$



$$B = [0, \infty)$$

$$A \cup B = (-\infty, -1) \cup [0, \infty)$$

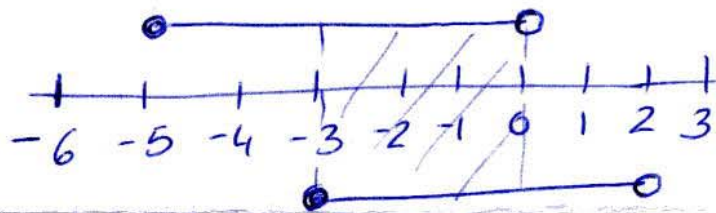
$$A \cap B = \emptyset$$

b)

$$A = \{x \in \mathbb{R} \mid -5 \leq x < 0\}$$

$$B = \{x \in \mathbb{R} \mid -3 \leq x < 2\}$$

$$A = [-5, 0)$$



$$B = [-3, 2)$$

$$A \cup B = [-5, 2)$$

$$A \cap B = [-3, 0)$$

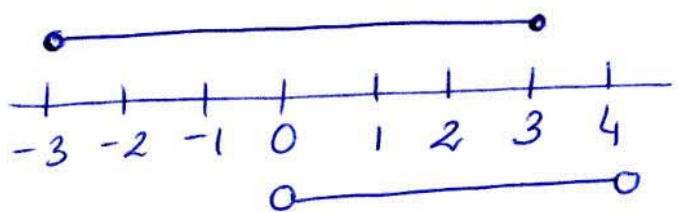
c) $A = E[0, 3] = [-3, 3]$

$$B = E(2, 2) = (0, 4)$$

$$A \cup B = [-3, 4)$$

$$A \cap B = (0, 3]$$

$$A = [-3, 3]$$



$$B = (0, 4)$$