

1)

$$A \cup B \cup C = \{1; 2; 3; 4; 5; 6; 7; 8; 10\}$$

~~$$A \cap C \setminus A = \{2; 4; 6; 8; 10\} \cap \{1;$$~~

$$B \cap C \setminus A = \{1; 7; 3\} \cap \{3; 5; 7; 9\} = \{3\}$$

$$(A \cap B) \cap (C \cap A) = \{2\} \cap \{2\} = \{2\}$$

$$\begin{aligned} A \setminus (B \cup C) &= \{2; 4; 6; 8; 10\} \setminus \{1; 2; 3; 5; 7\} \\ &= \{4; 6; 8; 10\} \end{aligned}$$

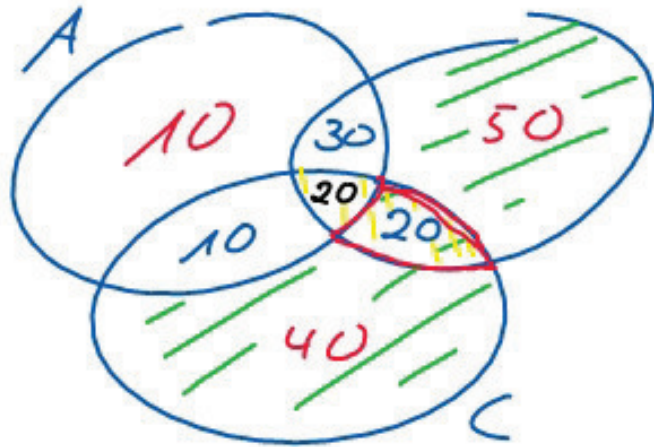
$$3) a) A \cap B = \{-10; -5; 0; 5; 10\}$$

$$b) A \cup B = \{x \in \mathbb{Z} \mid -9 \leq x \leq 9 \vee x \bmod 5 = 0\}$$

$$c) A \setminus B = \{x \in \mathbb{Z} \setminus \{\pm 10; \pm 5; 0\} \mid x \bmod 5 = 0\}$$

$$d) B \setminus A = \{\pm 9; \pm 8; \pm 7; \pm 6; \pm 4; \pm 3; \pm 2; \pm 1\}$$

2)



3)

$$A \cup B = 140$$

$$A \cup B \cup C = 180$$

$$\bar{A} \cap B \cap C = 20$$

$$\underbrace{\bar{A} \cap \bar{B}}_{40} \cap C = 40$$

4)

$$a) A \cap B = \{42\}$$

$$b) A \cup B = \{x \in \mathbb{R} \mid 42 \leq x < 50 \cup x \in \{Z: 14, 21, 28, 35\}\}$$

$$c) A \setminus B = \{x \in \mathbb{R} \mid 42 < x < 50\}$$

$$d) B \setminus A = \{Z: 14, 21, 28, 35\}$$

$$1) (9 - 12i + 4i^2) [(2 - 4i)(2 + 4i)i]$$

$$(5 - 12i) \cdot (4 - (4i)^2) \cdot i$$

$$(5 - 12i) \cdot 20i = 100i + 240 \rightarrow KD$$

$$v = \sqrt{100^2 + 240^2} = \sqrt{10000 + 57600} = \sqrt{67600}$$

$$\alpha = \arctan \frac{100}{240} + 0\pi = \arctan \frac{5}{12}$$

$$2) \frac{3+7i}{4-i} + \frac{-i}{2i-3} = \frac{(3+7i)(2i-3) - i(4-i)}{(4-i)(2i-3)}$$

$$= \frac{6i - 9 + 4i^2 - 6i - 4i + i^2}{8i - 12 - 7i^2 + 3i} = \frac{-14 - 4i}{-10 + 11i} \cdot \frac{-10 - 11i}{-10 - 11i}$$

$$\neq \frac{96}{221} + \frac{194i}{221} \quad \frac{140 + 40i + 154i + 44i^2}{221} = \frac{96 + 194i}{221} = \frac{96}{221} + \frac{194i}{221}$$