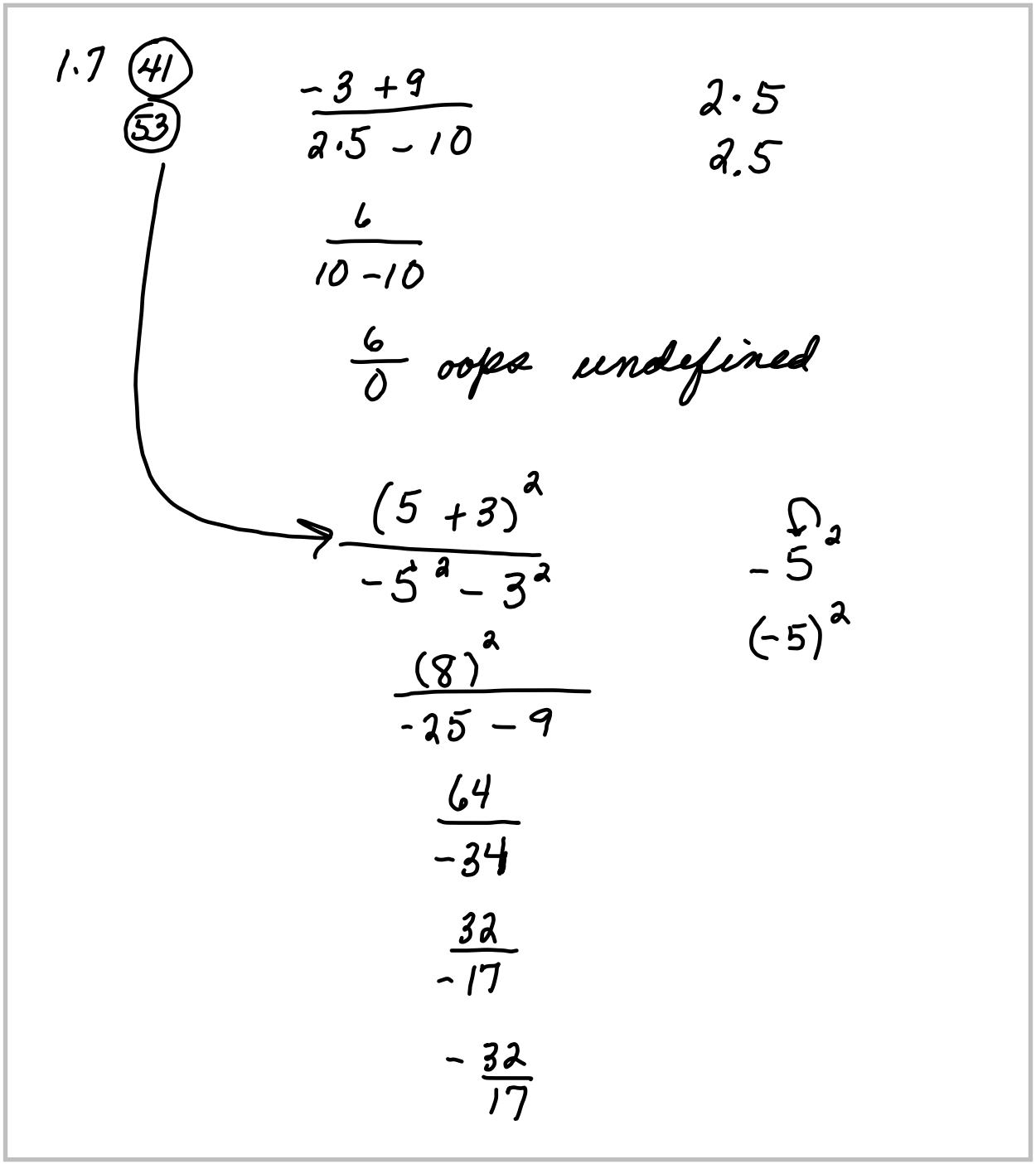

1.7
41
53
$\frac{-3+9}{2.5-10}$
$\frac{6}{10-10}$
$\frac{6}{0}$ oops undefined
$\frac{(5+3)^2}{-5^2-3^2}$
$\frac{(8)^2}{-25-9}$
$\frac{64}{-34}$
$\frac{32}{-17}$
$-\frac{32}{17}$
2.5
2.5
-5^2
$(-5)^2$

$A = \{2, 4, 6, 8\}$ $\not\in$

$B = \{6, 8, 12, 24\}$ $\in$

$2 \in A$ $\quad$ $2 \notin B$

2 is an element of A $\quad$ 2 is not an element of B

$\{2\} \subseteq A$ $\quad$ $\{2\} \not\subseteq B$

$\{2\} \subset A$

is proper subset of

$B = \{6, 8, 12, 24\}$

$A = \{2, 4, 6, 8\}$

$\mathcal{U}$

$A \cup B = \{2, 4, 6, 8, 12, 24\}$

union

$A \cap B = \{6, 8\}$

intersect

$A \smile B$

$A \frown B$

How many subsets

$2^4 = 16$

cardinality

$n(A) = 4$

Always subsets of a set

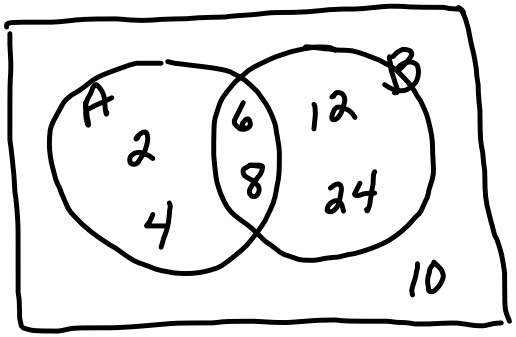
$\{\}$ $\emptyset$

itself

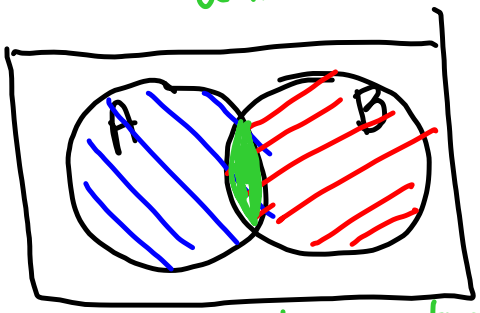
$A = \{2, 4, 6, 8\}$

$B = \{6, 8, 12, 24\}$

$U = \{2, 4, 6, 8, 10, 12, 24\}$



union

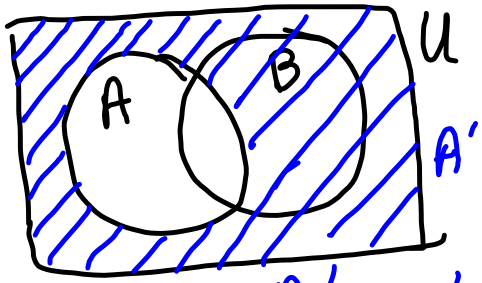


intersection

A Ü B

A $A' \rightarrow A^C$

complement of A



$A \cup A' = U$

$U = \{2, 4, 6, 8, 10\}$

$A = \{2, 4, 6\}$

$B = \{2, 4, 6, 8\}$

$C = \{2, 6, 10\}$

$A' = \{8, 10\}$

$A' \cup A = U$

$A \cup B = \{2, 4, 6, 8\}$

$A \cup C = \{2, 4, 6, 10\}$

$B \cup C = \{2, 4, 6, 8, 10\}$

$C' = \{4, 8\}$

$B' = \{10\}$

$A \cap B = \{2, 4, 6\}$

$A \cap C = \{2, 6\}$

$B \cap C = \{2, 6\}$

1.8 Subsets of the Real Numbers

Real numbers $\mathbb{R}$

$\mathbb{N}$ = the natural or counting numbers

$\mathbb{N} = \{1, 2, 3, 4, \cdots\}$

$\mathbb{W}$ = whole numbers

$\mathbb{W} = \{0, 1, 2, 3, 4, \cdots\}$

natural #s plus zero

$\mathbb{Z}$ = the integers

$= \{\ldots, -3, -2, -1, 0, 1, 2, 3, 4, \ldots\}$

$\mathbb{N} \subseteq \mathbb{W} \subseteq \mathbb{Z} \subseteq \mathbb{R}$

$\mathbb{Q}$ = rational numbers

$= \left\{ \frac{a}{b} \mid a \text{ and } b \in \mathbb{Z} \right\}$

$\mathbb{I}$ or $\mathbb{H}$ = irrational numbers

$\mathbb{I} \cup \mathbb{Q} = \mathbb{R}$

π, e, $\sqrt{2}$, $\sqrt[3]{15}$

decimal – rational # ends or repeats

– irrational #s never end and never repeat

$\frac{1}{3} = .\overline{33}$ repeats

$\frac{1}{4} = .25$ ends

$4 = \frac{4}{1}$

$\mathbb{N}$

A prime – a number that is divisible by 1 and itself only

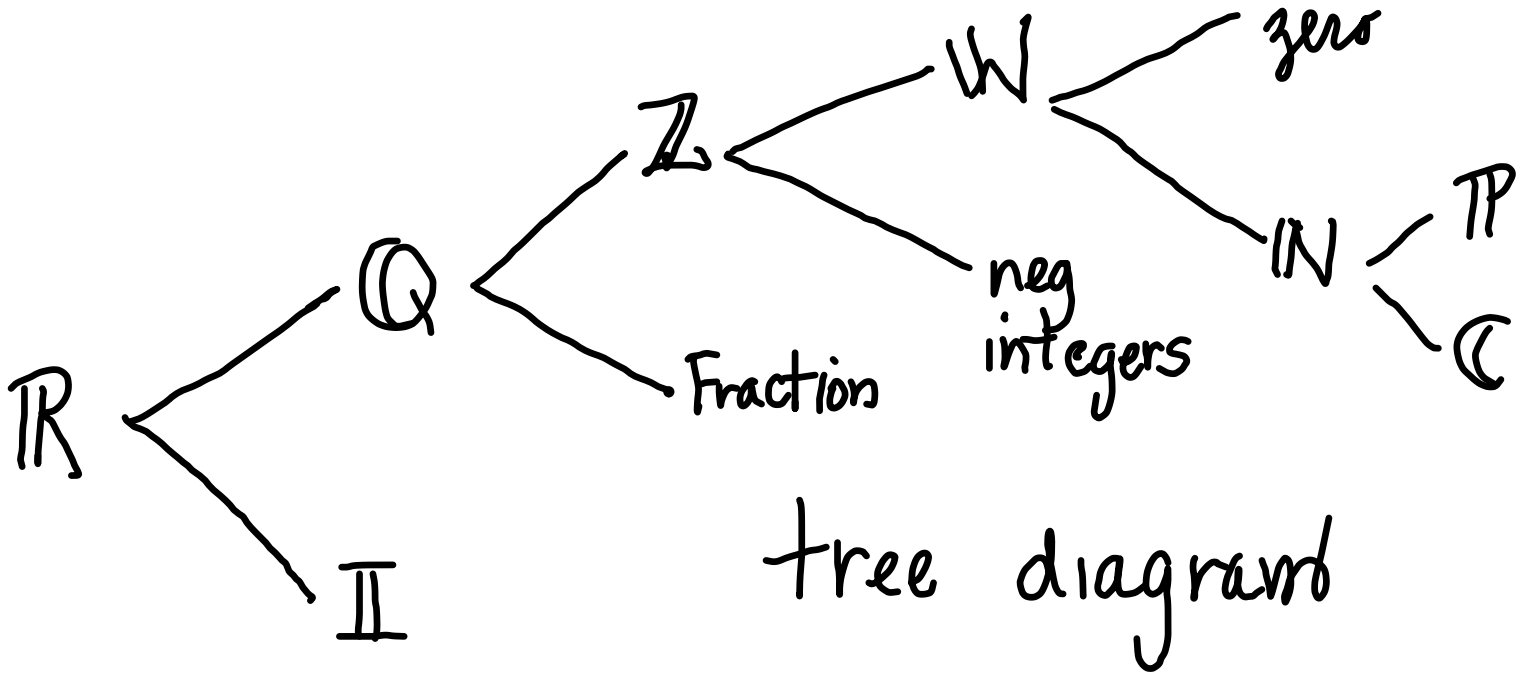
2

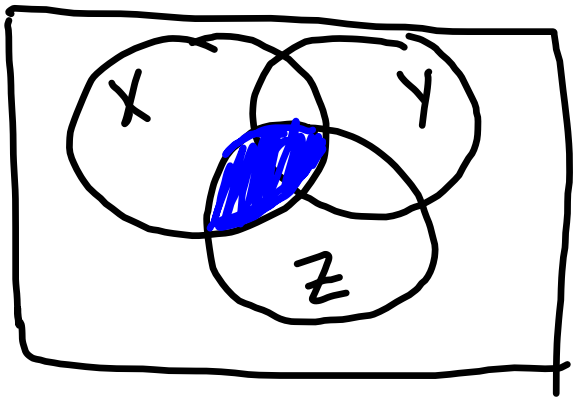
A composite – not a prime

$\mathbb{P} = \{2, 3, 5, 7, 11, 13, \dots\}$

$\mathbb{C} = \{x \mid x \in \mathbb{N} \text{ and is not a prime}\}$

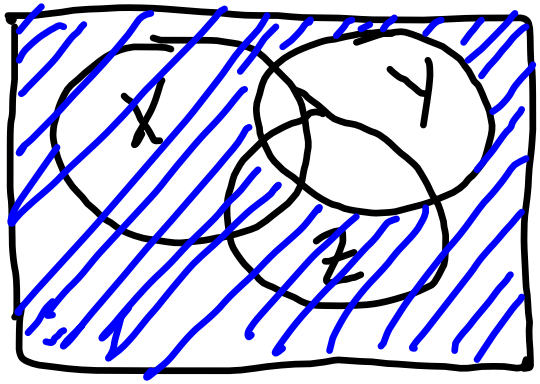
$\{4, 6, 8, 9, 10, 12, \dots\}$


ℝ
ℚ
𝕀
ℤ
Fraction
𝕎
neg integers
ℕ
zero
ℙ
ℂ
tree diagram



26. $X \cap Z$

33 Y'



35.

$x \in W$

$\{0, 1, 2, 3, 4, 5, 6, \ldots\}$

$x < 6$

$\{0, 1, 2, 3, 4, 5\}$

1.9 Add and Subtract Fractions

$$\frac{1}{3} + \frac{4}{3} = \frac{5}{3}$$

With like denominators

$$\frac{9}{x} - \frac{3}{x} = \frac{6}{x}$$

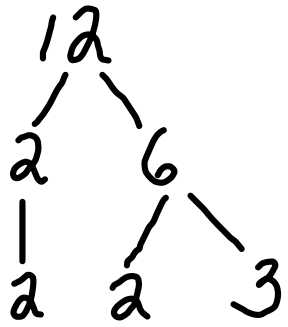
$$\frac{a}{b} + \frac{c}{b} = \frac{a+c}{b}$$

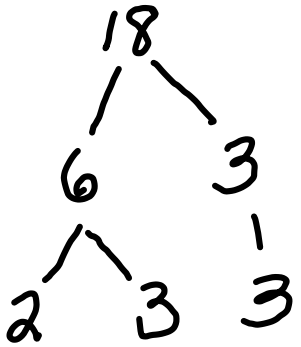
(ex) $$\frac{x+6}{2} - \frac{9}{2} = \frac{x+6-9}{2}$$

$$= \frac{x-3}{2}$$

$\frac{3}{3}\frac{5}{12} + \frac{7}{18}\frac{2}{2}$

LCD- Least Common Denominator





$12 = 2 \cdot 2 \cdot 3$

$18 = 2 \cdot 3 \cdot 3$

$LCD = 2 \cdot 2 \cdot 3 \cdot 3$

$= 36$

$\frac{15}{36} + \frac{14}{36}$

$\frac{29}{36}$

(e) $\frac{7}{7}\frac{17}{30} + \frac{11}{42}\frac{5}{5}$

$\frac{119}{210} + \frac{55}{210}$

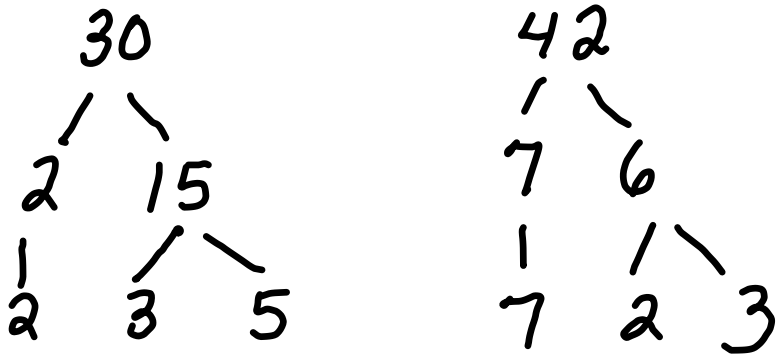
$\frac{174}{210}$ 87

105

$\frac{87}{105}$ 29

35

$\frac{29}{35}$



$30 = 2 \cdot 3 \cdot 5$

$42 = 2 \cdot 3 \cdot 7$

$LCD = 2 \cdot 3 \cdot 5 \cdot 7$

$= 210$