1.9 (27) $\frac{3}{3}\cdot\frac{1}{2} + \frac{2}{3}\cdot\frac{2}{2}$

LCD = 6

$\frac{3}{6} + \frac{4}{6}$

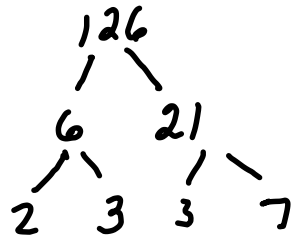
$\frac{7}{6}$

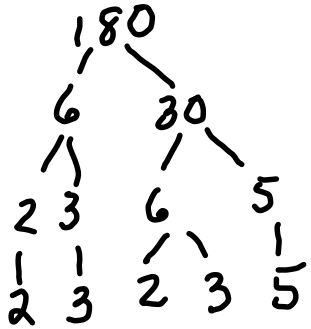
(37) $\frac{10}{10}\cdot\frac{13}{126} - \frac{13}{180}\cdot\frac{7}{7}$

$\frac{130}{1260} - \frac{91}{1260}$

$\frac{39}{1260}$

$\frac{13}{420}$ done





$126 = 2 \cdot 3 \cdot 3 \cdot 7$

$180 = 2 \cdot 3 \cdot 3 \cdot 2 \cdot 5$

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

130
91
39

(57) $\frac{3}{5}\left(-\frac{10}{1}\right) + \frac{4}{7}\left(-\frac{21}{1}\right)$

$-6 - 12$

-18

(59) $\left(\frac{20}{20}\right)\frac{3}{a} + \frac{3}{4}\left(\frac{5a}{5a}\right) + \frac{1}{5}\left(\frac{4a}{4a}\right)$

LCD = $20a$

$\frac{60}{20a} + \frac{15a}{20a} + \frac{4a}{20a}$

$\frac{60 + 15a + 4a}{20a}$

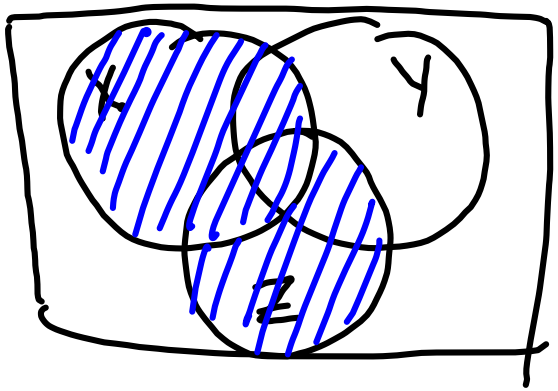
$\frac{60 + 19a}{20a}$

Sets

(36) $\{x \mid x \in \mathbb{Z} \text{ and } -1 < x < 4\}$

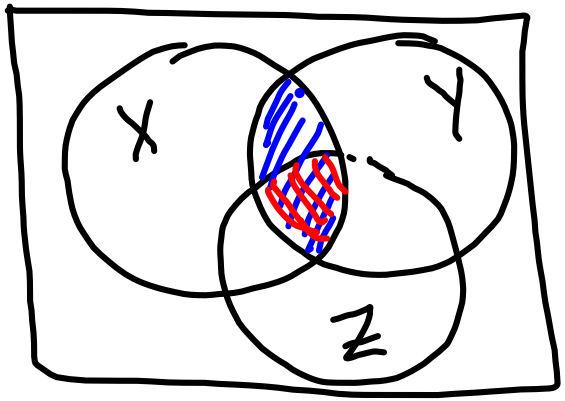
$\{0, 1, 2, 3\}$

29



$X \cup Z$

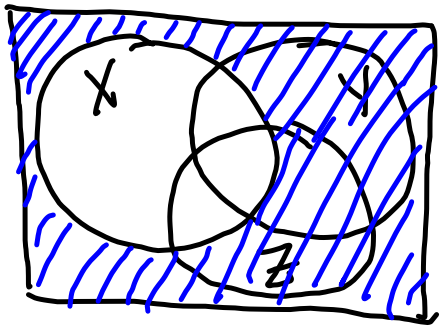
(30)



$X \cap Y$

$X \cap Y \cap Z$

(32)



X'

(37) $\{x \mid x \in \mathbb{W} \text{ and } x \text{ is a multiple of } 3\}$

$\rightarrow \{0, 3, 6, 9, 12, \ldots\}$

$\{x \mid x \in \mathbb{W} \text{ and } x < 10\}$

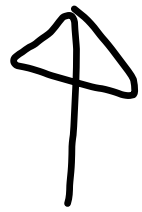
$\rightarrow \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$

intersection $\{0, 3, 6, 9\}$

1

(38) $\{x \mid x \in \mathbb{Z} \text{ and } -1 < x < 4\}$

$\{x \mid x \in \mathbb{Z} \text{ and } -5 < x < 2\}$



$\{0, 1, 2, 3\} \cup \{-4, -3, -2, -1, 0, 1\}$

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

Chapter 2.1

We can add <u>like</u> (similar) terms

↓

have the same variables to the same powers.

xy^2 $\quad$ xy^2

(1x) $4x + 5x$ $\quad$ coefficient (the numeric part)

$9x$

(ex) $6x + 3 - 2x + 1$

$6x - 2x + 3 + 1$

$4x + 4$

(ex) $4(2x - 3) + 9$

$8x - 12 + 9$

$8x - 3$

(ex) $6 - 7(2x - 3)$

$6 - 14x + 21$

$-14x + 27$

same

$27 - 14x$

constant

Simplified the expressions

(ex) Evaluate $3x + 2y$ for $x = 2$, $y = -2$

$3(2) + 2(-2)$

$6 - 4$

2

(ex) $x^2 - 2x + 3$ for $x = (-3)$

$\rightarrow (-3)^2 - 2(-3) + 3$

$9 + 6 + 3$

$15 + 3$

18

2.2 Equations

expression = expression

We want to solve

find the # that makes the equation a true statement

Ex Is 6 a solution to $5x + 3 = 33$?

$5(6) + 3 \stackrel{?}{=} 33$

$30 + 3 = 33$

$33 = 33$ ✓ yes.

E

Equivalent Equation –

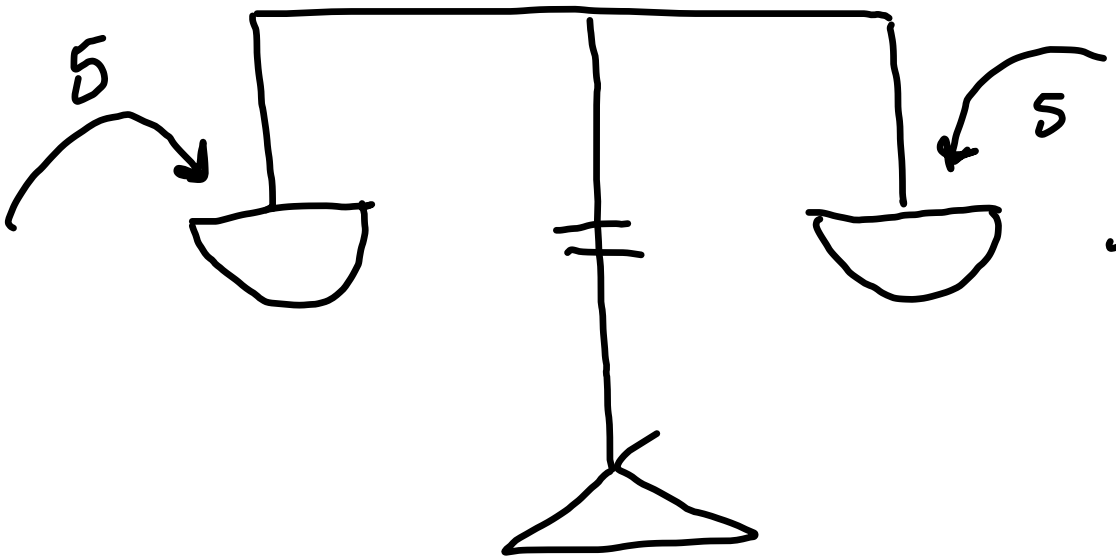
equations with the same solution set.

↓

$x + 3 = 5$ and $x = 2$

are equivalent

variable = constant (a number)



equation

Addition property of equality

if $a = b$ then $a + c = b + c$

let a, b, & c be algebraic expressions

(iii) $x - 5 = 6$

$+5 \quad +5$

$x = 11$ equivalent to

(iv) $3x - 5 = 2x + 7$

$+5 \qquad +5$

$3x = 2x + 12$

$-2x \quad -2x$

$1x = 12$ solution

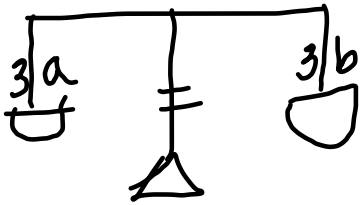
$x = 12$

2.3 The Multiplication Property of Equality

Let a, b, and c be algebraic expressions

and $c \neq 0$

then if $a = b$



$ac = bc$

ex $\left(\frac{1}{8}\right)\frac{1}{3}x = 30\left(\frac{1}{5}\right)$ multiply by $\left(\frac{1}{5}\right)$

$x = 6$

$$\frac{5x}{5} = \frac{30}{5}$$

$$x = 6$$

(ex) Solve for t:

$$(-3)\left(-\frac{t}{3}\right) = 5(-3)$$

$$t = -15$$

$$-\frac{(-15)}{3} \stackrel{?}{=} 5$$

$$\frac{15}{3} = 5$$

$$5 = 5 \quad \checkmark \text{ yep}$$

$$\frac{-t}{3} = \frac{t}{-3}$$

(x) $\left(\frac{-5}{3}\right)^{-}\frac{3}{5}x = \frac{9}{5}\left(\frac{-5}{3}\right)$

$1x = -3$

$x = -3$

$(5)\frac{-3}{3}x = \frac{9}{5}(5)$

multiply by the LCD

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

$x = -3$

(7) $6(20-14) = \frac{1}{3}a + \frac{5}{6}a - \frac{2}{3}a$ $\frac{36}{6}$ 216

$6\left[36\right] = \left[\frac{1}{3}a + \frac{5}{6}a - \frac{2}{3}a\right]6$

$216 = {}^{2}\cancel{6}\left(\frac{1}{\cancel{3}_{1}}a\right) + {}^{1}\cancel{6}\left[\frac{5}{\cancel{6}_{1}}a\right] - {}^{2}\cancel{6}\left(\frac{2}{\cancel{3}_{1}}a\right)$

$216 = 2a + 5a - 4a$

$216 = 7a - 4a$

$\frac{216}{3} = \frac{3a}{3}$

$72 = a$

2.4 Linear Equations

$$ax + b = 0$$

where $a \neq 0$

Strategy for solving linear equations pg 104

$x =$ some number

variable = constant

(ex) Solve for x

$$6(x-1) = -18$$

$$6x - 6 = -18$$

$$+6 \qquad +6 \qquad -$$

$$\frac{6x}{6} = \frac{-12}{6} \qquad -$$

$$x = -2$$

Working with decimals

$$10\left[-0.3(2x-5)\right]=\left[0.7(3-x)\right]10$$

$$-3(2x-5)=7(3-x)$$

$$-6x+15=21-7x$$

$$+7x \qquad +7x$$

$$x+15=21$$

$$-15 \qquad -15$$

$$x=6$$

(ex) $\frac{1}{2}(2x-6)+\frac{4}{1}=\frac{2}{3}(3x+9)-\frac{8}{1}$

$x-3+4=2(x+3)-8$

$x-3+4=2x+6-8$

$x+1=2x-2$

$-x \qquad -x$

$1=x-2$

$+2 \qquad +2$

$3=x$

same as $x=3$