$$\Delta P = \frac{B \cdot O}{S}$$

ΔP = jumlah tambahan pekerja

B = Berhenti

O = Orang

S = Sisa hari

Gradien

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = -\frac{a}{b}$$

$$m = koef. x$$

$$m = \frac{-y}{x} \text{ (pada grafik)}$$

PGL (persamaan garis lurus)

$$y - y_1 = m(x - x_1)$$

P. Kuadrat

1) 2 Suku

$$x^2 - 4 = (x+2)(x-2)$$

$$\downarrow \qquad \downarrow$$

$$\sqrt{x^2} \quad \sqrt{4}$$

2) 3 Suku

$$x^2 + \underset{\oplus}{4x} + \underset{\otimes}{4}$$

Sehingga:

$$2 \oplus 2 = 4$$

$$2 \otimes 2 = 4$$

$$(x+2)(x+2)$$

3) 3 Suku (koef x^2 lebih dari satu)

$$3x^2 + 5x + 2$$

$\otimes$

Sehingga:

$$3x^2 + \underset{\oplus}{5x} + \underset{\otimes}{6}$$

$$3 \oplus 2 = 5$$

$$3 \otimes 2 = 6$$

$$\frac{(3x+3)_{:3}(3x+2)}{(x+1)(3x+2)}$$

Jual, beli, untung, rugi

1) $U\% = \dfrac{J-B}{B} \times 100\%$

2) $R\% = \dfrac{B-J}{B} \times 100\%$

3) $\dfrac{J}{B} = \dfrac{100+U}{100}$

Barisan & deret

1) Aritmatika $(+,-)$

$\overset{a}{2}, 4, 6, \ldots$

$\underset{+2}{\underbrace{}} \underset{+2}{\underbrace{}} = b$

$Un = a + (n-1) \cdot b$

$Sn = \dfrac{n}{2} \left(2a + (n-1) \cdot b\right)$

$Sn = \dfrac{n}{2} \left(a + Un\right)$

2) Geometri $(\times, \div)$

$\underset{\times 2\ \ \times 2}{\underbrace{2, 4, 8, 16, \ldots}} \; r$

with a marked at 2

$U_n = a \cdot r^{n-1}$, $\quad r = \dfrac{U_2}{U_1}$ atau $\dfrac{U_3}{U_2}$

$S_n = \dfrac{a(r^n - 1)}{r - 1}$, jika $r > 1$

$S_n = \dfrac{a(1 - r^n)}{1 - r}$, jika $r < 1$

Bangun Ruang

1) Kerucut
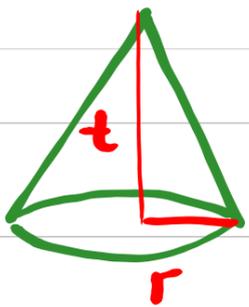
$V = \dfrac{1}{3}\pi r^2 t$

$L = \pi r^2 + \pi r s$

2) Tabung
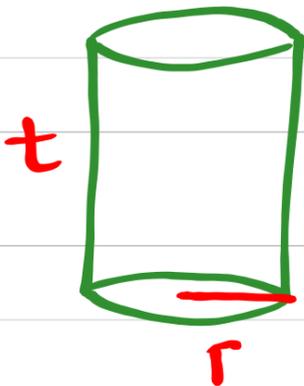
$V = \pi r^2 t$

$L = 2\pi r t + 2\pi r^2$

3) Bola

$V = \dfrac{4}{3}\pi r^3$

$L = 4\pi r^2$

4) kubus

$V = S^3$

$L = 6 \times S^2$
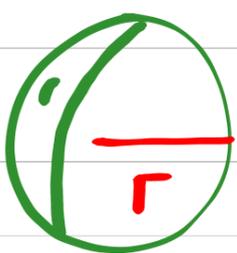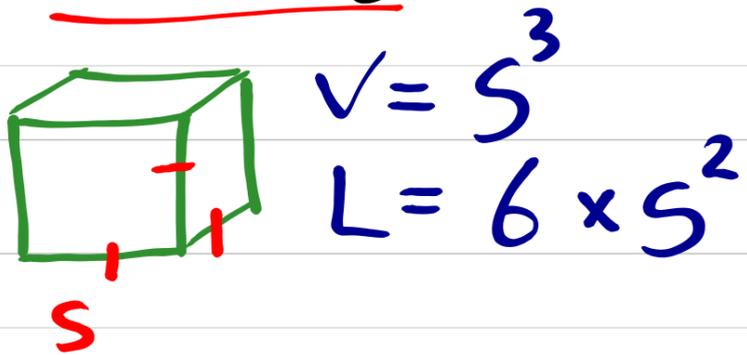
Diagonal Sisi (DS) $= S\sqrt{2}$

Diagonal Ruang (DR) $= S\sqrt{3}$

5) Balok
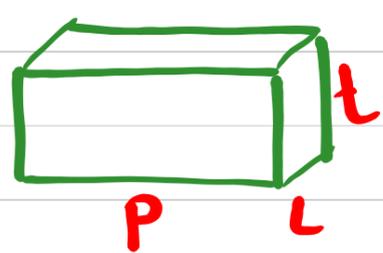
$V = p \times l \times t$

$L = 2 \times (pl + pt + lt)$

Diagonal Sisi $\Rightarrow$ phytagoras

Diagonal Ruang $= \sqrt{p^2 + l^2 + t^2}$

6) Limas
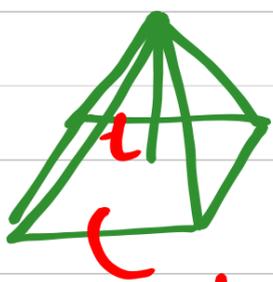
$V = \frac{1}{3} \times La \times t$

$L = La + n \cdot L$ Sisi tegak

alas bisa persegi/p. panjang

7) Prisma
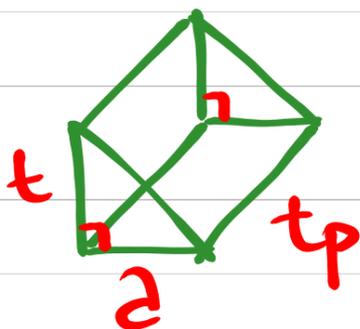
$V = La \times t$

$L = 2 \times La + n \cdot L$ sisi tegak

Lingkaran

$L = \pi r^2$

$D = \text{diameter} = 2 \times r$

$\pi = \dfrac{22}{7}$ atau $3{,}14$
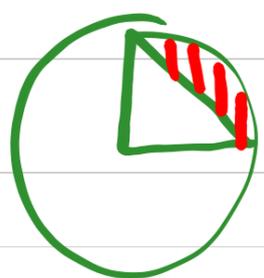
Luas tembereng $= L\dfrac{1}{4}\odot - L\Delta$
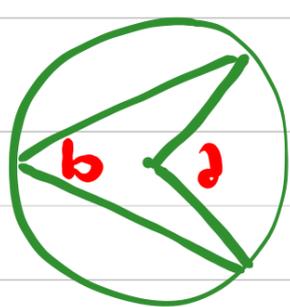
$a° = 2 \times b°$
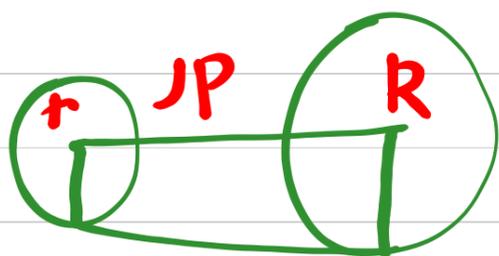
Dalam $= \oplus$

Luar $= \ominus$

luar gs

$gs = \sqrt{Jp^2 - (R-r)^2}$

dalam

$gs = \sqrt{Jp^2 - (R+r)^2}$

gs (dalam)

# Peluang

Ruang Sample $= (\text{sisi})^{\text{Jumlah}}$

2 dadu $= 6^2 = 36$

Peluang $= \dfrac{n}{R_s}$, $P_{\text{dadu ganjil}} = \dfrac{3}{6} = \dfrac{1}{2}$

garis dan sudut
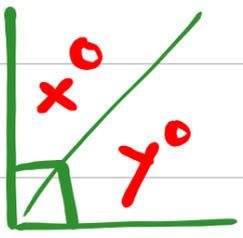
$$x° + y° = 90°$$

$$a° + b° + c° = 180°$$

Tripel Phytagoras

- 3, 4, 5
- 5, 12, 13
- 7, 24, 25
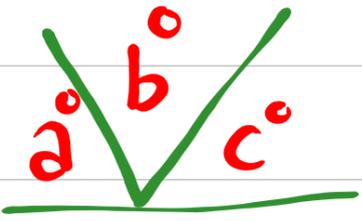
- 8, 15, 17
- 10, 24, 26

Statistika

$$\bar{X}\text{gabungan} = \frac{\bar{X}_1 \cdot f_1 + \bar{X}_2 \cdot F_2}{F_1 + F_2}$$

$$\text{Letak median} = \frac{\Sigma_f + 1}{2} \quad , \quad \Sigma_F = \text{Jumlah seluruh data}$$

# Segitiga Air Mancur
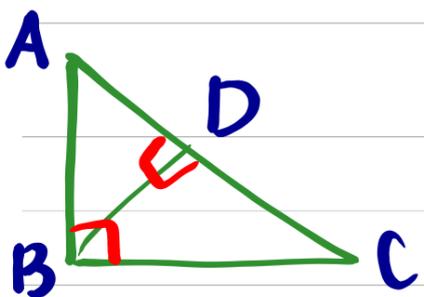
$$AB^2 = AD \times AC$$

$$BD^2 = AD \times CD$$

$$BC^2 = CD \times AC$$

Segitiga Istimewa

$S : S : S\sqrt{2}$

$1 : 1 : \sqrt{2}$

$S : S\sqrt{3} : 2S$

$1 : \sqrt{3} : 2$
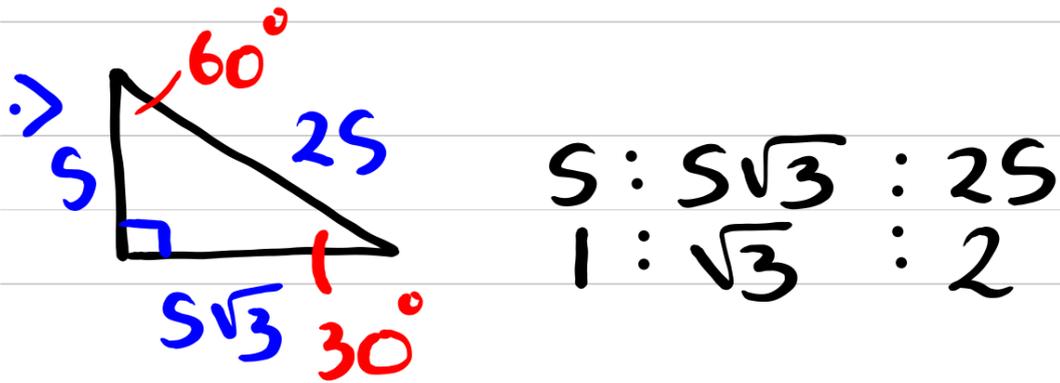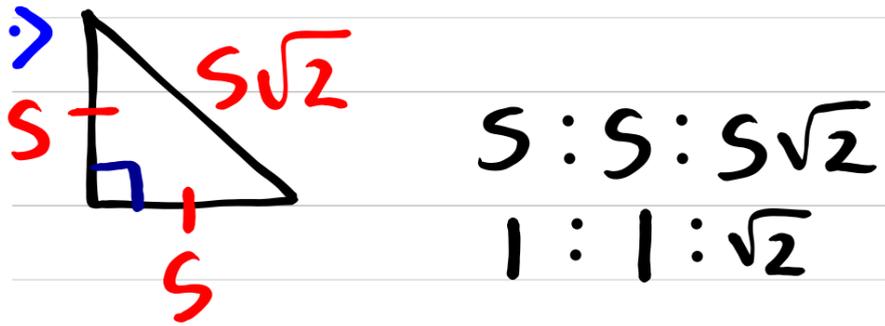
Trapesium
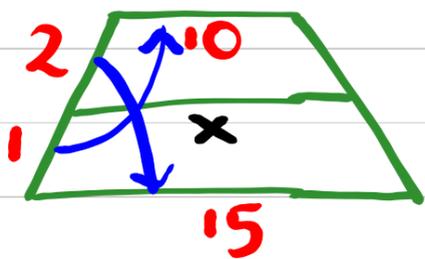
$$x = \frac{2.15 + 1.10}{3}$$

$$= \frac{30 + 10}{3} = \frac{40}{3}$$
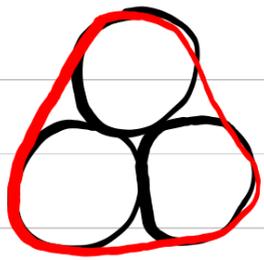
panjang tali merah $= n.r + k \odot$

$= 3.2r + k \odot$

$= 6r + k \odot$

> Sudut tumpul + Sudut lancip $= 180°$
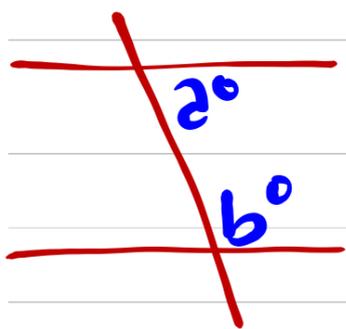
a = Sudut lancip
b = Sudut tumpul

$a + b = 180°$

Persamaan garis Lurus

// (sejajar), syarat : $m_1 = m_2$

Contoh:

> // $2x - y = 5$, $A(1, -2)$

jawab: $m_1 = \dfrac{-a}{b} = \dfrac{-2}{-1} = \dfrac{2}{1} = 2$

$m_1 = m_2 = 2$

PGL: $y - y_1 = m_2(x - x_1)$

$y + 2 = 2(x - 1)$

$y + 2 = 2x - 2$

$y = 2x - 4$ ✓

$\perp$ (tegak Lurus), syarat: $m_2 = -\dfrac{1}{m_1}$

> $\perp$ $2x - y = 5$, $A(1, -2)$

jawab: $m_1 = -\dfrac{a}{b} = \dfrac{-2}{-1} = \dfrac{2}{1} = 2$

$\perp$ $m_2 = -\dfrac{1}{m_1} = \dfrac{-1}{2}$

PGL: $y - y_1 = m_2(x - x_1)$

$y + 2 = -\frac{1}{2}(x - 1)$ ✓

Himpunan

$S + i = L$

S = Semesta/Semua
i = irisan/suka keduanya
L = Lain $\underline{\underline{2}}$ (Selain semesta & irisan)

Daerah asal & daerah hasil

⋗ $F(x) = -x^2 + 4x + 4$

$\{x \mid -1 \leq x \leq 1, x \in R\}$

daerah hasilnya = ?

Jawab:

$F(-1) = -(-1)^2 + 4(-1) + 4$
$\qquad = -1 - 4 + 4$

$\qquad = -1$ ✓

$F(1) = -(1)^2 + 4(1) + 4$

$\qquad = -1 + 4 + 4$
$\qquad\qquad\ \ _3$

$\qquad = 3 + 4 = 7$ ✓

jadi daerah hasilnya:

$\{y \mid -1 \leq y \leq 7, y \in R\}$

Pertidaksamaan

Syarat: pembagian & perkalian negatif, maka tanda $(>, <, \geqslant, \leqslant)$ berubah

$\cdot > 2x - 10 \geqslant 3x - 5$

$2x - 3x \geqslant -5 + 10$

$-x \geqslant 5$

$x \leqslant \dfrac{5}{-1}$

$x \leqslant -5$

Kolaborasi bangun datar
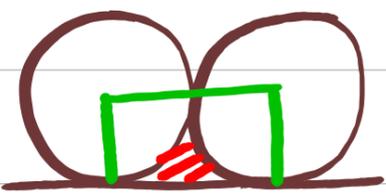
Luas daerah arsir $= L.$ persegi panjang $- L \frac{1}{2} \odot$

$\triangle$ pascal

$(a+b)^2 = a^2 + 2ab + b^2$

$\cdot > (2x - y)^2$

$\left.\begin{array}{l} a = 2x \\ b = -y \end{array}\right\}$

Sehingga:

$\Rightarrow (2x)^2 + 2(2x)(-y) + (-y)^2$

$\Rightarrow 4x^2 - 4xy + y^2 \ \checkmark$