

Babylonisches Rechnen

$$\textcircled{1} \quad 2; 13; 11 \cdot 5 =$$

$$\begin{array}{r} 10 \\ 1; 5 \text{ ; } 55 \\ \hline = 11; 05; 55 \end{array}$$

$$\textcircled{2} \quad 4; 22 \cdot 3; 00$$

$$\begin{array}{r} 12 \\ 1 \quad 06 \\ \hline = 13; 06 \end{array}$$

Umrechnung

$$\left(2 \cdot 60 + 13 + \frac{11}{60} \right) \cdot 5$$

$$\left(10 \cdot 60 + 13 \cdot 5 + \frac{55}{60} \right)$$

$$10 \cdot 60 + 65 + \frac{55}{60}$$

$$= 11 \cdot 60 + 5 + \frac{55}{60}$$

Voll umgeschrieben

$$\left(133 + \frac{11}{60} \right) \cdot 5$$

$$\left(665 + \frac{55}{60} \right)$$

$$= 11 \cdot 60 + 5 + \frac{55}{60}$$

$$\textcircled{3} \quad 51; 24 : 3$$

$$= 17; 08$$

$$\textcircled{4} \quad 51; 24 : 3; 00$$

$$= 51; 24 : 3$$

$$17; 08$$

$$\textcircled{5} \quad 17; 08 : 2$$

$$\begin{array}{r} 8 \\ 30 \\ 4 \\ \hline = 8; 34 \end{array}$$

mit Kehrbruch
nehmen

$$1/20 = 60/20 \cdot 1/60$$

$$= 3/60 = 0; 03$$

$$\textcircled{6} \quad \begin{array}{|l} 1; 00 : 20 \\ \hline 0; 03 \end{array}$$

$$\textcircled{7} \quad 17; 08 : 20$$

$$0; 51$$

$$\begin{array}{r} 0; 24 \\ \hline = 0; 51; 24 \end{array}$$

$$17; 08 \cdot 0; 03$$

$$= 0; 51; 24$$

$$\textcircled{8} \quad 1; 43 : 2; 00$$

$$\begin{array}{r} 0; 30 \\ 21 \\ \hline 0 \quad 30 \\ \hline = 0; 51; 30 \end{array}$$

$$8; 34; 10$$

$$\cdot 48$$

$$= 3 \quad 24$$

$$= 0; 51; 24$$

$$\textcircled{9} \quad 11 \llcorner 11 \llcorner 11 \cdot 11$$

$$= \llcorner 11 \llcorner 11 \llcorner 11$$

b) Babylon Aufgabe 4

Ja 09

$$x^2 + y^2 = 52;05$$

$$x^2 + y^2 = 3125$$

Strasbourg

$$x = z + 20$$

$$x = z + 20$$

$$y = 0;40 z + 5$$

$$y = \frac{2}{3}z + 5$$

Also $(z + 20)^2 + (\frac{2}{3}z + 5)^2 = 3125$

Quadratische Gleichung $\Rightarrow z = -\frac{810}{13} \vee \underline{\underline{z = 30}}$

nur positiv $\Rightarrow \underline{\underline{x = 50}} \quad \underline{\underline{y = 25}}$

$$c) x^2 - x = 14;30$$

$$0;30 \cdot 0;30 = 0;15$$

$$x^2 - x + 0;30^2 = 14;30 + 0;30^2$$

$$(x - 0;30)^2 = 14;30;15 \quad \Rightarrow \frac{3481}{4} = \left(\frac{59}{2}\right)^2$$

$$x = 0;30 + 29;30$$

$$\underline{\underline{x = 30}}$$

London

$$d) x^2 + y^2 + z^2 = 10;12;45$$

$$y = \frac{x}{7} \quad z = \frac{x}{7} \Rightarrow z = \frac{x}{7} \cdot \frac{1}{7} = \frac{x}{49}$$

$$\Rightarrow x^2 + \frac{x^2}{49} + \frac{x^2}{49^2} = 10;12;45$$

$$x^2 \left(\frac{49^2 + 49 + 1}{49^2} \right) = 6012 + \frac{3}{4} = \frac{2451}{4} \quad \text{Dez.}$$

$$x^2 = \frac{2451 \cdot 49^2}{4(49^2 + 50)} = \frac{2401}{4} = \left(\frac{49}{2}\right)^2$$

$$x = \frac{49}{2} = \underline{\underline{24\frac{1}{2}}}$$

$$y = \frac{49}{2 \cdot 7} = \underline{\underline{\frac{7}{2}}} \quad z = \frac{7}{2 \cdot 7} = \underline{\underline{\frac{1}{2}}}$$

$$e) \left. \begin{aligned} xy - (x-y)^2 &= 8;20 \\ x-y &= 10 \end{aligned} \right\} \begin{aligned} xy - 100 &= 500 \\ xy &= 600 \end{aligned}$$

$$\} x(x-10) = 600 \Leftrightarrow x^2 - 10x + 5^2 = 625$$

$$(x-5)^2 = 25^2$$

$$x = 5 \pm 25$$

pos $\underline{\underline{x = 30}} \quad \underline{\underline{y = 20}}$