

# Algebra oefeningen (Wiskunde)

Palsma (PLP)

2010

1. Omcirkel de variabele welke je vrij moet spelen
2. Deel de rest van de vergelijking op in handige “blokken”
3. Verschuif de vergelijking indien nodig (voor overzicht)
4. Gebruik de balans-methode; beide kanten van de =
5. Werk in stappen, schrijf bij het oefenen de stappen op

|               |                           |                   |                               |
|---------------|---------------------------|-------------------|-------------------------------|
| <b>1</b>      | <b>2</b>                  | <b>3</b>          | <b>4</b>                      |
| $17 = 5 + x$  | $q = p + \textcircled{x}$ | $6 = 3 \cdot x$   | $s = v \cdot \textcircled{t}$ |
| $21 = x + 9$  | $r = \textcircled{x} + s$ | $24 = x \cdot 8$  | $F = \textcircled{m} \cdot a$ |
| $16 = x - 7$  | $v = w - \textcircled{x}$ | $25 = x \cdot 10$ | $U = \textcircled{1} \cdot R$ |
| $19 = 25 - x$ | $d = \textcircled{x} - c$ | $90 = 7 \cdot x$  | $a = c \cdot \textcircled{x}$ |

|                     |                                 |                     |                                 |
|---------------------|---------------------------------|---------------------|---------------------------------|
| <b>5</b>            | <b>6</b>                        | <b>7</b>            | <b>8</b>                        |
| $3 = \frac{x}{2}$   | $p = \frac{\textcircled{x}}{q}$ | $4 = \frac{12}{x}$  | $P = \frac{E}{\textcircled{t}}$ |
| $5 = \frac{x}{7}$   | $r = \frac{\textcircled{x}}{s}$ | $9 = \frac{36}{x}$  | $R = \frac{U}{\textcircled{1}}$ |
| $9 = \frac{x}{12}$  | $I = \frac{\textcircled{U}}{R}$ | $6 = \frac{40}{x}$  | $m = \frac{F}{\textcircled{a}}$ |
| $2,4 = \frac{x}{6}$ | $a = \frac{\textcircled{F}}{m}$ | $12 = \frac{54}{x}$ | $I = \frac{P}{\textcircled{U}}$ |

|  |  |   |   |
|--|--|---|---|
| <b>9</b><br>$30 = 6 \cdot \frac{x}{2}$ | <b>10</b><br>$p = q \cdot \frac{\textcircled{x}}{r}$ | <b>11</b><br>$24 = 6 \cdot \frac{8}{x}$ | <b>12</b><br>$R = \rho \cdot \frac{l}{\textcircled{A}}$ |
| $24 = 7 \cdot \frac{x}{4}$             | $R = \rho \cdot \frac{\textcircled{1}}{a}$           | $28 = 4 \cdot \frac{28}{x}$             | $p = q \cdot \frac{r}{\textcircled{S}}$                 |
| $12 = 3 \cdot \frac{x}{5}$             | $a = b \cdot \frac{\textcircled{C}}{d}$              | $14 = 3 \cdot \frac{17}{x}$             | $a = b \cdot \frac{c}{\textcircled{D}}$                 |
| $9 = 4 \cdot \frac{x}{5}$              | $r = s \cdot \frac{\textcircled{t}}{v}$              | $17 = 7 \cdot \frac{5}{x}$              | $r = s \cdot \frac{v}{\textcircled{t}}$                 |

|                        |                             |                         |                             |
|------------------------|-----------------------------|-------------------------|-----------------------------|
| <b>13</b><br>$2^2 = x$ | <b>14</b><br>$\sqrt{4} = x$ | <b>15</b><br>$x^2 = 16$ | <b>16</b><br>$\sqrt{x} = 5$ |
| $4^2 = x$              | $\sqrt{25} = x$             | $x^2 = 32$              | $\sqrt{x} = 9$              |
| $6^2 = x$              | $\sqrt{81} = x$             | $x^2 = 121$             | $\sqrt{x} = 7$              |
| $5, 4^2 = x$           | $\sqrt{50} = x$             | $x^2 = 83$              | $\sqrt{x} = 3, 2$           |

|   |   |  |   |
|---|---|--|---|
| <b>17</b><br>$\left(\frac{x}{10}\right)^2 = 16$ | <b>18</b><br>$\left(\frac{\textcircled{1}}{g}\right)^2 = r$ | <b>19</b><br>$\sqrt{\frac{36}{x}} = 3$ | <b>20</b><br>$\sqrt{\frac{\textcircled{1}}{g}} = x$ |
| $\left(\frac{10}{x}\right)^2 = 25$              | $\left(\frac{p}{\textcircled{Q}}\right)^2 = z$              | $\sqrt{\frac{x}{3}} = 6$               | $\sqrt{\frac{m}{\textcircled{C}}} = T$              |
| $\left(\frac{15}{x}\right)^2 = 20$              | $\left(\frac{\textcircled{b}}{c}\right)^2 = a$              | $\sqrt{\frac{40}{x}} = 4$              | $\sqrt{\frac{\textcircled{D}}{q}} = r$              |
| $\left(\frac{x}{3,5}\right)^2 = 23$             | $\left(\frac{x}{\textcircled{V}}\right)^2 = p$              | $\sqrt{\frac{x}{2,5}} = 3, 4$          | $\sqrt{\frac{b}{\textcircled{C}}} = a$              |

$$T = 2\pi\sqrt{\frac{\textcircled{1}}{g}}$$

$$T = 2\pi\sqrt{\frac{\textcircled{10}}{c}}$$

$$T = 2\pi\sqrt{\frac{l}{\textcircled{G}}}$$

$$T = 2\pi\sqrt{\frac{m}{\textcircled{C}}}$$

# Antwoorden

*Let op! Ik sta niet in voor de juistheid van de antwoorden!  
Hoe je bij het antwoord komt staat op de laatste pagina (1 som per soort)*

|               |             |                     |                   |
|---------------|-------------|---------------------|-------------------|
| <b>1</b>      | <b>2</b>    | <b>3</b>            | <b>4</b>          |
| $x = 17 - 5$  | $x = q - p$ | $x = \frac{6}{3}$   | $t = \frac{s}{v}$ |
| $x = 21 - 9$  | $x = r - s$ | $x = \frac{24}{8}$  | $m = \frac{F}{a}$ |
| $x = 16 - 7$  | $x = w - v$ | $x = \frac{25}{10}$ | $I = \frac{U}{R}$ |
| $x = 25 - 19$ | $x = d + c$ | $x = \frac{90}{7}$  | $x = \frac{a}{c}$ |

|                    |                 |                     |                   |
|--------------------|-----------------|---------------------|-------------------|
| <b>5</b>           | <b>6</b>        | <b>7</b>            | <b>8</b>          |
| $x = 3 \cdot 2$    | $x = p \cdot q$ | $x = \frac{12}{4}$  | $t = \frac{E}{P}$ |
| $x = 5 \cdot 7$    | $x = r \cdot s$ | $x = \frac{36}{9}$  | $I = \frac{U}{R}$ |
| $x = 9 \cdot 12$   | $U = I \cdot R$ | $x = \frac{40}{6}$  | $a = \frac{F}{m}$ |
| $x = 6 \cdot 2, 4$ | $F = m \cdot a$ | $x = \frac{54}{12}$ | $U = \frac{P}{I}$ |

|                            |                              |                             |                              |
|----------------------------|------------------------------|-----------------------------|------------------------------|
| <b>9</b>                   | <b>10</b>                    | <b>11</b>                   | <b>12</b>                    |
| $x = \frac{30}{6} \cdot 2$ | $x = \frac{p}{q} \cdot r$    | $x = \frac{8 \cdot 6}{24}$  | $A = \frac{l \cdot \rho}{R}$ |
| $x = \frac{24}{7} \cdot 4$ | $l = \frac{R}{\rho} \cdot A$ | $x = \frac{28 \cdot 4}{28}$ | $s = \frac{r \cdot q}{p}$    |
| $x = \frac{12}{3} \cdot 5$ | $c = \frac{a}{b} \cdot c$    | $x = \frac{17 \cdot 3}{14}$ | $d = \frac{c \cdot b}{a}$    |
| $x = \frac{9}{4} \cdot 5$  | $t = \frac{r}{s} \cdot v$    | $x = \frac{5 \cdot 7}{17}$  | $t = \frac{v \cdot s}{r}$    |

|                   |                    |            |              |
|-------------------|--------------------|------------|--------------|
| <b>13</b>         | <b>14</b>          | <b>15</b>  | <b>16</b>    |
| $2^2 = 4$         | $\sqrt{4} = 2$     | $x = 4$    | $x = 25$     |
| $4^2 = 16$        | $\sqrt{25} = 5$    | $x = 5, 7$ | $x = 81$     |
| $6^2 = 36$        | $\sqrt{81} = 9$    | $x = 11$   | $x = 56$     |
| $5, 4^2 = 29, 16$ | $\sqrt{50} = 7, 1$ | $x = 9, 1$ | $x = 10, 24$ |

|                            |                          |                           |                     |
|----------------------------|--------------------------|---------------------------|---------------------|
| <b>17</b>                  | <b>18</b>                | <b>19</b>                 | <b>20</b>           |
| $x = 10 \cdot \sqrt{16}$   | $l = g \cdot \sqrt{r}$   | $x = \frac{36}{3^2}$      | $l = x^2 \cdot g$   |
| $x = \frac{10}{\sqrt{25}}$ | $q = \frac{p}{\sqrt{z}}$ | $x = 6^2 \cdot 3$         | $c = \frac{m}{T^2}$ |
| $x = \frac{15}{\sqrt{20}}$ | $b = c \cdot \sqrt{a}$   | $x = \frac{40}{4^2}$      | $p = r^2 \cdot q$   |
| $x = 3, 5 \cdot \sqrt{23}$ | $y = \frac{x}{\sqrt{p}}$ | $x = (3, 4)^2 \cdot 2, 5$ | $c = \frac{b}{a^2}$ |

|   |   |
|---|---|
| $l = g \left( \frac{T}{2\pi} \right)^2$         | $m = c \left( \frac{T}{2\pi} \right)^2$         |
| $g = \frac{l}{\left( \frac{T}{2\pi} \right)^2}$ | $c = \frac{m}{\left( \frac{T}{2\pi} \right)^2}$ |

$$\begin{aligned} & \textcircled{1} \\ +x & \left\{ \begin{array}{l} 19 = 25 - x \\ 19 + x = 25 \end{array} \right. \rightarrow +x \\ -19 & \left\{ \begin{array}{l} x = 25 - 19 \end{array} \right. \rightarrow -19 \end{aligned}$$

$$\begin{aligned} & \textcircled{4} \\ :R & \left\{ \begin{array}{l} 4 = I \cdot R \\ \frac{4}{R} = I \end{array} \right. \rightarrow :R \end{aligned}$$

$$\begin{aligned} & \textcircled{6} \quad f \\ & \cdot m \left( d = \frac{F}{m} \right) \cdot m \\ & \text{Ervaar} \left( q \cdot m = F \right) \cdot m \\ & \left( \frac{F}{m} \cdot m = \frac{F \cdot m}{m} \right) \end{aligned}$$

$$\begin{aligned} & \textcircled{8} \\ \cdot t & \left( \begin{array}{l} P = \frac{E}{t} \\ P \cdot t = \frac{E \cdot t}{t} \end{array} \right) \cdot t \\ :P & \left( \begin{array}{l} P \cdot t = E \\ \frac{P \cdot t}{P} = \frac{E}{P} \end{array} \right) :P \\ & t = \frac{E}{P} \end{aligned}$$

$$\begin{aligned} & \textcircled{9} \quad \textcircled{10} \\ :P & \left( \begin{array}{l} R = \rho \frac{l}{A} \\ \frac{R}{\rho} = \frac{l}{A} \end{array} \right) :P \\ \cdot A & \left( \begin{array}{l} \frac{R}{\rho} = \frac{l}{A} \\ \frac{R}{\rho} \cdot A = l \end{array} \right) \cdot A \end{aligned}$$

$$\begin{aligned} & \textcircled{11} \\ :P & \left( \begin{array}{l} R = \rho \frac{l}{A} \\ \frac{R}{\rho} = \frac{l}{A} \end{array} \right) :P \\ \cdot A & \left( \begin{array}{l} \frac{R}{\rho} = \frac{l}{A} \\ \frac{R}{\rho} \cdot A = l \end{array} \right) \cdot A \\ : \frac{R}{\rho} & \left( \begin{array}{l} \frac{R}{\rho} \cdot A = l \\ A = \frac{l}{\left(\frac{R}{\rho}\right)} \\ A = \frac{l \cdot \rho}{R} \end{array} \right) : \frac{R}{\rho} \end{aligned}$$

delen door een breuk, is vermenigvuldigen met omgekeerde

$$\begin{aligned} & \textcircled{15} \\ \sqrt{x^2 = 16} & \rightarrow \sqrt{x^2} = \sqrt{16} \\ x & = \sqrt{16} \\ & \left( \sqrt{3^2} = 3 \right) \end{aligned}$$

$$\begin{aligned} & \textcircled{18} \\ \sqrt{\left(\frac{P}{9}\right)^2 = z} & \rightarrow \sqrt{\frac{P}{9}} = \sqrt{z} \\ \cdot 9 & \left( \frac{P}{9} = \sqrt{z} \right) \cdot 9 \\ : \sqrt{z} & \left( \begin{array}{l} P = 9 \cdot \sqrt{z} \\ \frac{P}{\sqrt{z}} = 9 \end{array} \right) : \sqrt{z} \end{aligned}$$

$$\begin{aligned} & \textcircled{20} \\ \cdot^2 & \left( \begin{array}{l} \sqrt{\frac{m}{C}} = T \\ \frac{m}{C} = T^2 \end{array} \right) \cdot^2 \\ \cdot C & \left( \begin{array}{l} \frac{m}{C} = T^2 \\ m = T^2 \cdot C \end{array} \right) \cdot C \\ : T^2 & \left( \begin{array}{l} m = T^2 \cdot C \\ \frac{m}{T^2} = C \end{array} \right) : T^2 \end{aligned}$$