

Wiskunde havo module meetkunde

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Oefeningen – Verhoudingstabellen en Kruislings Vermenigvuldigen

Los alle opgaven op met kruislings vermenigvuldigen.

Niveau 1 – Basis (1–20)

$$1. \frac{4}{x} \mid \frac{12}{30}$$

$$2. \frac{3}{5} \mid \frac{9}{x}$$

$$3. \frac{7}{x} \mid \frac{14}{28}$$

$$4. \frac{8}{12} \mid \frac{20}{x}$$

$$5. \frac{2}{3} \mid \frac{10}{x}$$

$$6. \frac{9}{21} \mid \frac{6}{x}$$

$$7. \frac{12}{x} \mid \frac{4}{3}$$

$$8. \frac{5}{x} \mid \frac{15}{45}$$

$$9. \frac{6}{x} \mid \frac{18}{24}$$

$$10. \frac{10}{4} \mid \frac{25}{x}$$

$$11. \frac{11}{x} \mid \frac{22}{44}$$

$$12. \frac{15}{x} \mid \frac{5}{2}$$

$$13. \frac{16}{4} \mid \frac{8}{x}$$

$$14. \frac{18}{x} \mid \frac{6}{12}$$

$$15. \frac{20}{8} \mid \frac{5}{x}$$

$$16. \frac{14}{x} \mid \frac{7}{21}$$

$$17. \frac{24}{x} \mid \frac{6}{9}$$

$$18. \frac{30}{x} \mid \frac{15}{45}$$

$$19. \frac{25}{10} \mid \frac{5}{x}$$

$$20. \frac{27}{x} \mid \frac{9}{12}$$

Niveau 2 – Variabelen (21–40)

$$21. \frac{5 \mid 3}{x \mid x-4}$$

$$22. \frac{6 \mid 4}{x \mid x-6}$$

$$23. \frac{7 \mid 2}{x \mid x+5}$$

$$24. \frac{8 \mid 3}{x \mid 2x}$$

$$25. \frac{4 \mid 5}{x \mid x+3}$$

$$26. \frac{9 \mid 3}{x-2 \mid x}$$

$$27. \frac{2 \mid 7}{x \mid 3x}$$

$$28. \frac{11 \mid 5}{x \mid x-2}$$

$$29. \frac{3 \mid 8}{x+1 \mid x}$$

$$30. \frac{6 \mid 5}{x \mid x+4}$$

$$31. \frac{10 \mid 4}{x \mid x-3}$$

$$32. \frac{12 \mid 6}{x+2 \mid x}$$

$$33. \frac{9 \mid 2}{x \mid x+7}$$

$$34. \frac{15 \mid 3}{x \mid 5x}$$

$$35. \frac{8 \mid 5}{x \mid x-8}$$

$$36. \frac{14 \mid 7}{x-1 \mid x}$$

$$37. \frac{20 \mid 4}{x \mid x+6}$$

$$38. \frac{18 \mid 9}{x \mid 2x}$$

$$39. \frac{21 \mid 7}{x \mid x-7}$$

$$40. \frac{16 \mid 2}{x \mid 8x}$$

Niveau 3 – Meerdere kolommen (41–60)

$$41. \frac{10 \mid 8 \mid 6}{15 \mid x \mid y}$$

$$42. \frac{12 \mid 9 \mid 6}{18 \mid a \mid b}$$

$$43. \frac{5 \mid 3 \mid 2}{x \mid 6 \mid y}$$

$$44. \frac{4 \mid 6 \mid 8}{x \mid 9 \mid y}$$

$$45. \frac{7 \mid 14 \mid 21}{2 \mid x \mid y}$$

$$46. \frac{3x \mid y \mid 21 - x}{2 \mid 6 \mid 4}$$

$$47. \frac{2x \mid x + 3 \mid 15}{3 \mid 6 \mid y}$$

$$48. \frac{5 \mid x \mid 2x}{3 \mid 9 \mid y}$$

$$49. \frac{x \mid 12 \mid 18}{4 \mid 6 \mid y}$$

$$50. \frac{6 \mid 9 \mid 12}{x \mid 15 \mid y}$$

$$51. \frac{8 \mid 2x \mid 14}{12 \mid 18 \mid 21}$$

$$52. \frac{9 \mid 3x \mid 6}{3 \mid 12 \mid 2}$$

$$53. \frac{10x \mid 5 \mid 20}{2 \mid 1 \mid y}$$

$$54. \frac{4x - 2 \mid 6 \mid 12}{5 \mid y \mid 10}$$

$$55. \frac{2x \mid 4 \mid 12}{3 \mid y \mid 9}$$

$$56. \frac{6 \mid 3x \mid 9}{2 \mid 4 \mid y}$$

$$57. \frac{8 \mid x \mid 4x}{2 \mid 5 \mid y}$$

$$58. \frac{7 \mid 14 \mid x}{3 \mid 6 \mid 9}$$

$$59. \frac{x \mid 5 \mid 15}{2 \mid 1 \mid y}$$

$$60. \frac{3x \mid y \mid 21 - x}{4 \mid 12 \mid 8}$$

Uitwerkingen

Niveau 1 – Uitwerkingen (1–20)

$$1. \frac{4}{x} \Big| \frac{12}{30}$$

$$4 \cdot 30 = 12x \Rightarrow 120 = 12x \Rightarrow x = 10$$

$$2. \frac{3}{5} \Big| \frac{9}{x}$$

$$3x = 9 \cdot 5 \Rightarrow 3x = 45 \Rightarrow x = 15$$

$$3. \frac{7}{x} \Big| \frac{14}{28}$$

$$7 \cdot 28 = 14x \Rightarrow 196 = 14x \Rightarrow x = 14$$

$$4. \frac{8}{12} \Big| \frac{20}{x}$$

$$8x = 20 \cdot 12 \Rightarrow 8x = 240 \Rightarrow x = 30$$

$$5. \frac{2}{3} \Big| \frac{10}{x}$$

$$2x = 10 \cdot 3 \Rightarrow 2x = 30 \Rightarrow x = 15$$

$$6. \frac{9}{21} \Big| \frac{6}{x}$$

$$9x = 6 \cdot 21 \Rightarrow 9x = 126 \Rightarrow x = 14$$

$$7. \frac{12}{x} \Big| \frac{4}{3}$$

$$12 \cdot 3 = 4x \Rightarrow 36 = 4x \Rightarrow x = 9$$

$$8. \frac{5}{x} \Big| \frac{15}{45}$$

$$5 \cdot 45 = 15x \Rightarrow 225 = 15x \Rightarrow x = 15$$

$$9. \frac{6}{x} \Big| \frac{18}{24}$$

$$6 \cdot 24 = 18x \Rightarrow 144 = 18x \Rightarrow x = 8$$

$$10. \frac{10}{4} \Big| \frac{25}{x}$$

$$10x = 25 \cdot 4 \Rightarrow 10x = 100 \Rightarrow x = 10$$

$$11. \frac{11}{x} \Big| \frac{22}{44}$$

$$11 \cdot 44 = 22x \Rightarrow 484 = 22x \Rightarrow x = 22$$

$$12. \frac{15}{x} \Big| \frac{5}{2}$$

$$15 \cdot 2 = 5x \Rightarrow 30 = 5x \Rightarrow x = 6$$

$$13. \frac{16}{4} \Big| \frac{8}{x}$$

$$16x = 8 \cdot 4 \Rightarrow 16x = 32 \Rightarrow x = 2$$

$$14. \frac{18}{x} \Big| \frac{6}{12}$$

$$18 \cdot 12 = 6x \Rightarrow 216 = 6x \Rightarrow x = 36$$

$$15. \frac{20}{8} \Big| \frac{5}{x}$$

$$20x = 5 \cdot 8 \Rightarrow 20x = 40 \Rightarrow x = 2$$

$$16. \frac{14}{x} \Big| \frac{7}{21}$$

$$14 \cdot 21 = 7x \Rightarrow 294 = 7x \Rightarrow x = 42$$

$$17. \frac{24}{x} \Big| \frac{6}{9}$$

$$24 \cdot 9 = 6x \Rightarrow 216 = 6x \Rightarrow x = 36$$

$$18. \frac{30}{x} \Big| \frac{15}{45}$$

$$30 \cdot 45 = 15x \Rightarrow 1350 = 15x \Rightarrow x = 90$$

$$19. \frac{25}{10} \Big| \frac{5}{x}$$

$$25x = 5 \cdot 10 \Rightarrow 25x = 50 \Rightarrow x = 2$$

$$20. \frac{27}{x} \Big| \frac{9}{12}$$

$$27 \cdot 12 = 9x \Rightarrow 324 = 9x \Rightarrow x = 36$$

Niveau 2 – Uitwerkingen (21–40)

$$21. \frac{5}{x} \mid \frac{3}{x-4}$$

$$5(x-4) = 3x \Rightarrow 5x - 20 = 3x \Rightarrow 2x = 20 \Rightarrow x = 10$$

$$31. \frac{10}{x} \mid \frac{4}{x-3}$$

$$10(x-3) = 4x \Rightarrow 10x - 30 = 4x \Rightarrow 6x = 30 \Rightarrow x = 5$$

$$22. \frac{6}{x} \mid \frac{4}{x-6}$$

$$6(x-6) = 4x \Rightarrow 6x - 36 = 4x \Rightarrow 2x = 36 \Rightarrow x = 18$$

$$32. \frac{12}{x+2} \mid \frac{6}{x}$$

$$12x = 6(x+2) \Rightarrow 12x = 6x + 12 \Rightarrow 6x = 12 \Rightarrow x = 2$$

$$23. \frac{7}{x} \mid \frac{2}{x+5}$$

$$7(x+5) = 2x \Rightarrow 7x + 35 = 2x \Rightarrow 5x = -35 \Rightarrow x = -7$$

$$33. \frac{9}{x} \mid \frac{2}{x+7}$$

$$9(x+7) = 2x \Rightarrow 9x + 63 = 2x \Rightarrow 7x = -63 \Rightarrow x = -9$$

$$24. \frac{8}{x} \mid \frac{3}{2x}$$

$$8 \cdot (2x) = 3x \Rightarrow 16x = 3x \Rightarrow 13x = 0 \Rightarrow x = 0$$

$$34. \frac{15}{x} \mid \frac{3}{5x}$$

$$15(5x) = 3x \Rightarrow 75x = 3x \Rightarrow 72x = 0 \Rightarrow x = 0$$

$$25. \frac{4}{x} \mid \frac{5}{x+3}$$

$$4(x+3) = 5x \Rightarrow 4x + 12 = 5x \Rightarrow x = 12$$

$$35. \frac{8}{x} \mid \frac{5}{x-8}$$

$$8(x-8) = 5x \Rightarrow 8x - 64 = 5x \Rightarrow 3x = 64 \Rightarrow x = \frac{64}{3}$$

$$26. \frac{9}{x-2} \mid \frac{3}{x}$$

$$9x = 3(x-2) \Rightarrow 9x = 3x - 6 \Rightarrow 6x = -6 \Rightarrow x = -1$$

$$36. \frac{14}{x-1} \mid \frac{7}{x}$$

$$14x = 7(x-1) \Rightarrow 14x = 7x - 7 \Rightarrow 7x = -7 \Rightarrow x = -1$$

$$27. \frac{2}{x} \mid \frac{7}{3x}$$

$$2 \cdot (3x) = 7x \Rightarrow 6x = 7x \Rightarrow x = 0$$

$$37. \frac{20}{x} \mid \frac{4}{x+6}$$

$$20(x+6) = 4x \Rightarrow 20x + 120 = 4x \Rightarrow 16x = -120 \Rightarrow x = -\frac{15}{2}$$

$$28. \frac{11}{x} \mid \frac{5}{x-2}$$

$$11(x-2) = 5x \Rightarrow 11x - 22 = 5x \Rightarrow 6x = 22 \Rightarrow x = \frac{11}{3}$$

$$38. \frac{18}{x} \mid \frac{9}{2x}$$

$$18(2x) = 9x \Rightarrow 36x = 9x \Rightarrow 27x = 0 \Rightarrow x = 0$$

$$29. \frac{3}{x+1} \mid \frac{8}{x}$$

$$3x = 8(x+1) \Rightarrow 3x = 8x + 8 \Rightarrow -5x = 8 \Rightarrow x = -\frac{8}{5}$$

$$39. \frac{21}{x} \mid \frac{7}{x-7}$$

$$21(x-7) = 7x \Rightarrow 21x - 147 = 7x \Rightarrow 14x = 147 \Rightarrow x = \frac{21}{2}$$

$$30. \frac{6}{x} \mid \frac{5}{x+4}$$

$$6(x+4) = 5x \Rightarrow 6x + 24 = 5x \Rightarrow x = -24$$

$$40. \frac{16}{x} \mid \frac{2}{8x}$$

$$16(8x) = 2x \Rightarrow 128x = 2x \Rightarrow 126x = 0 \Rightarrow x = 0$$

Niveau 3 – Uitwerkingen (41–60)

$$41. \frac{10}{15} \mid \frac{8}{x} \mid \frac{6}{y}$$

$$10x = 8 \cdot 15 \Rightarrow x = 12, \quad 10y = 6 \cdot 15 \Rightarrow y = 9$$

$$42. \frac{12}{18} \mid \frac{9}{a} \mid \frac{6}{b}$$

$$12a = 9 \cdot 18 \Rightarrow a = \frac{27}{2}, \quad 12b = 6 \cdot 18 \Rightarrow b = 9$$

$$43. \frac{5}{x} \mid \frac{3}{6} \mid \frac{2}{y}$$

$$3x = 5 \cdot 6 \Rightarrow x = 10, \quad 3y = 2 \cdot 6 \Rightarrow y = 4$$

$$44. \frac{4}{x} \mid \frac{6}{9} \mid \frac{8}{y}$$

$$6x = 4 \cdot 9 \Rightarrow x = 6, \quad 6y = 8 \cdot 9 \Rightarrow y = 12$$

$$45. \frac{7}{2} \mid \frac{14}{x} \mid \frac{21}{y}$$

$$7x = 14 \cdot 2 \Rightarrow x = 4, \quad 7y = 21 \cdot 2 \Rightarrow y = 6$$

$$46. \frac{3x}{2} \mid \frac{y}{6} \mid \frac{21-x}{4}$$

$$2(21-x) = 4(3x) \Rightarrow 42-2x = 12x \Rightarrow 14x = 42 \Rightarrow x = 3$$

$$\frac{2}{3x} = \frac{6}{y} \Rightarrow 2y = 18x \Rightarrow y = 9x = 27$$

$$47. \frac{2x}{3} \mid \frac{x+3}{6} \mid \frac{15}{y}$$

$$3(x+3) = 6(2x) \Rightarrow 3x+9 = 12x \Rightarrow 9 = 9x \Rightarrow x = 1$$

$$\frac{3}{2x} = \frac{y}{15} \Rightarrow \frac{3}{2} = \frac{y}{15} \Rightarrow y = \frac{45}{2}$$

$$48. \frac{5}{3} \mid \frac{x}{9} \mid \frac{2x}{y}$$

$$3x = 5 \cdot 9 \Rightarrow x = 15$$

$$\frac{3}{5} = \frac{y}{2x} \Rightarrow y = \frac{3}{5} \cdot 2x = \frac{6}{5} \cdot 15 = 18$$

$$49. \frac{x}{4} \mid \frac{12}{6} \mid \frac{18}{y}$$

$$12 \cdot 4 = 6x \Rightarrow 48 = 6x \Rightarrow x = 8$$

$$12y = 18 \cdot 6 \Rightarrow 12y = 108 \Rightarrow y = 9$$

$$50. \frac{6}{x} \mid \frac{9}{15} \mid \frac{12}{y}$$

$$9x = 6 \cdot 15 \Rightarrow 9x = 90 \Rightarrow x = 10$$

$$9y = 12 \cdot 15 \Rightarrow 9y = 180 \Rightarrow y = 20$$

$$51. \frac{8}{12} \mid \frac{2x}{18} \mid \frac{14}{21}$$

$$8 \cdot 18 = 12(2x) \Rightarrow 144 = 24x \Rightarrow x = 6$$

$$52. \frac{9}{3} \mid \frac{3x}{12} \mid \frac{6}{2}$$

$$9 \cdot 12 = 3(3x) \Rightarrow 108 = 9x \Rightarrow x = 12$$

$$53. \frac{10x}{2} \mid \frac{5}{1} \mid \frac{20}{y}$$

$$2 \cdot 5 = 1 \cdot (10x) \Rightarrow 10 = 10x \Rightarrow x = 1$$

$$5y = 20 \cdot 1 \Rightarrow 5y = 20 \Rightarrow y = 4$$

$$54. \frac{4x-2}{5} \mid \frac{6}{y} \mid \frac{12}{10}$$

$$5 \cdot 12 = 10(4x-2) \Rightarrow 60 = 40x-20 \Rightarrow 40x = 80 \Rightarrow x = 2$$

$$\frac{10}{12} = \frac{y}{6} \Rightarrow y = 6 \cdot \frac{10}{12} = 5$$

$$55. \frac{2x}{3} \mid \frac{4}{y} \mid \frac{12}{9}$$

$$3 \cdot 12 = 9(2x) \Rightarrow 36 = 18x \Rightarrow x = 2$$

$$\frac{9}{12} = \frac{y}{4} \Rightarrow y = 4 \cdot \frac{3}{4} = 3$$

$$56. \frac{6}{2} \mid \frac{3x}{4} \mid \frac{9}{y}$$

$$6 \cdot 4 = 2(3x) \Rightarrow 24 = 6x \Rightarrow x = 4$$

$$6y = 9 \cdot 2 \Rightarrow 6y = 18 \Rightarrow y = 3$$

$$57. \frac{8}{2} \mid \frac{x}{5} \mid \frac{4x}{y}$$

$$8 \cdot 5 = 2x \Rightarrow 40 = 2x \Rightarrow x = 20$$

$$\frac{2}{8} = \frac{y}{4x} \Rightarrow y = \frac{1}{4} \cdot 4x = x = 20$$

$$58. \frac{7}{3} \mid \frac{14}{6} \mid \frac{x}{9}$$

$$6x = 14 \cdot 9 \Rightarrow 6x = 126 \Rightarrow x = 21$$

$$59. \frac{x}{2} \mid \frac{5}{1} \mid \frac{15}{y}$$

$$2 \cdot 5 = 1 \cdot x \Rightarrow x = 10$$

$$5y = 15 \cdot 1 \Rightarrow y = 3$$

$$60. \frac{3x}{4} \mid \frac{y}{12} \mid \frac{21-x}{8}$$

$$4(21-x) = 8(3x) \Rightarrow 84-4x = 24x \Rightarrow 28x = 84 \Rightarrow x = 3$$

$$\frac{4}{3x} = \frac{12}{y} \Rightarrow 4y = 36x \Rightarrow y = 9x = 27$$