Thứ ngày

Bài 1:

a) $1\frac{4}{23} + \frac{5}{21} - \frac{4}{23} + 0,5 + \frac{16}{21}$

$= 1\frac{4}{23} - \frac{4}{23} + \frac{5}{21} + \frac{16}{21} + 0,5$

$= 1 + 1 + \frac{5}{10}$

$= 2 + \frac{1}{2}$

$= \frac{5}{2}$

b) $\frac{3}{7} \cdot 14\frac{1}{3} - \frac{3}{7} \cdot 33\frac{1}{3}$

$= \frac{3}{7} \cdot (14\frac{1}{3} - 33\frac{1}{3})$

$= \frac{3}{7} \cdot 14$

$= 6$

c) $(-\frac{1}{3})^2 \cdot \frac{4}{11} + \frac{7}{11} \cdot (-\frac{1}{3})^2 + |-\frac{8}{9}|$

$= \frac{1}{9} \cdot (\frac{-1}{3})^2 \cdot (\frac{4}{11} + \frac{7}{11}) + \frac{8}{9}$

$= \frac{1}{9} \cdot 1 + \frac{8}{9}$

Bài 2:

a) $(-6,37 \cdot 0,4) \cdot 2,5$

$= -6,37 \cdot 2,5 \cdot 2,5 \cdot 0,4$

$= -6,37 \cdot 0,4 \cdot 2,5$

$= -6,37 \cdot 1$

$= -6,37$

b) $(-0,125) \cdot (-5,37) \cdot 8$

$= (-0,125) \cdot 8 \cdot (5,37)$

$= -1 \cdot 5,3$

$= -5,3$

c) $(-2,5) \cdot (-4) \cdot (-7,9)$

$= 1 \cdot 7,9$

$= -7,9$

d) $(-0,375) \cdot 4\frac{1}{3} \cdot (-2)^3$

$= (-0,375) \cdot \frac{13}{3} \cdot (-2)^3$

$= \frac{-3}{8} \cdot \frac{13}{3} \cdot -8$

Thứ ngày

$= \frac{-13}{8} \cdot \frac{-8}{1}$

$= 13$

Bài 7:

d) $\frac{8^5 \cdot (-5)^8 + (-2)^5 \cdot 10^9}{2^{16} \cdot 5^7 + 20}$

$= \frac{(2^3)^5 \cdot (-5)^8 + (-2)^5 \cdot (2 \cdot 5)^9}{2^{16} \cdot 5^7 + (5 \cdot 4)^8}$

$= \frac{2^{15} \cdot 5^8 + 2^{14} \cdot 5^8 (2-5)}{2^{16} \cdot 5^7 \cdot (1+5^8)}$

$= \frac{5^8 \cdot 2^{14} (2-5)}{2^{16} \cdot 5^7 \cdot (1+5)}$

$= \frac{5 \cdot (-3)}{4 \cdot -4} = \frac{15}{16}$

Bài 3:

a) $\frac{11}{12} - \left(\frac{2}{5} + x\right) = \frac{2}{3}$

$\left(\frac{2}{5} + x\right) = \frac{11}{12} - \frac{2}{3}$

$\left(\frac{2}{5} + x\right) = \frac{3}{12}$

$\left(\frac{2}{5} + x\right) = \frac{1}{4}$

$x = \frac{1}{4} - \frac{2}{5}$

$x = \frac{5-8}{20} = \frac{-3}{20}$

Thứ ngày . .

b) $\frac{3}{4} + \frac{1}{5} : x = \frac{1}{4}$

$\frac{1}{5} : x = \frac{1}{4} - \frac{3}{4}$

$\frac{1}{5} : x = \frac{-2}{4}$

$\frac{1}{5} : x = \frac{-1}{2}$

$x = \frac{1}{5} : \frac{-1}{2}$

$x = \frac{1}{5} \times \frac{-2}{1}$

$x = \frac{-2}{5}$

c) $\left| 3x - \frac{1}{2} \right| - \frac{1}{4} = \frac{1}{3}$

$\left| 3x - \frac{1}{2} \right| = \frac{1}{3} + \frac{1}{4}$

$\left| 3x - \frac{1}{2} \right| = \frac{4+3}{12}$

$\left| 3x - \frac{1}{2} \right| = \frac{7}{12}$

TH1: $3x - \frac{1}{2} = \frac{7}{12}$

$3x = \frac{7}{12} + \frac{1}{2}$

$3x = \frac{7}{12} + \frac{6}{12}$

$3x = 1$

$x = 3$

TH2: $3x - \frac{1}{2} = \frac{-7}{12}$

$3x = \frac{-7}{12} + \frac{1}{2}$

$3x = \frac{-1}{12}$

$x = \frac{-1}{12} : 3$

$x = \frac{-1}{12} \times \frac{1}{3} = \frac{-1}{36}$

d) $(x - \frac{1}{2})^2 = \frac{4}{25}$

TH1: $(x - \frac{1}{2}) = \frac{2}{5}$

$x = \frac{2}{5} + \frac{1}{2}$

$x = \frac{4+5}{10} = \frac{9}{10}$

TH2: $x - \frac{1}{2} = \frac{-2}{5}$

$x = \frac{-2}{5} + \frac{1}{2}$

$x = \frac{-4}{10} + \frac{5}{10}$

$x = \frac{1}{10}$

e) $5^x + 5^{x+2} = 650$

$5^x \cdot (1 + 5^2) = 650$

$5^x \cdot 26 = 650$

$5^x = 650 : 26$

$5^x = 25$

$x = 2$

g) $\frac{37 - x}{x + 13} = \frac{7}{3}$

$(37 - x) \cdot 7 = (x + 13) \cdot 3$

$7 \cdot 37 - 7 \cdot x = 3 \cdot x + 3 \cdot 13$

$7 \cdot 37 - 3 \cdot 13 = 7x + 3x$

$220 = 10x$

$x = 220 : 10$

$x = 22$

Thứ ngày

Bài 4:

a) $\frac{x}{10} = \frac{y}{6} = \frac{z}{21}$ và $5x + y - 2z = 28$

$\frac{x}{10} = \frac{y}{6} = \frac{z}{21} = \frac{5x + y - 2z}{10.5 + 6 - 21.2} = \frac{28}{-14} = -2$

$\frac{x}{10} = -2 \Rightarrow x = -20$

$\frac{y}{6} = -2 \Rightarrow y = -12$

$\frac{z}{21} = -2 \Rightarrow z = -42$

c) $\frac{x-1}{2} = \frac{y-2}{3} = \frac{z-3}{4}$ và $x - 2y + 3z = 14$

$\frac{(x-1)}{2} = \frac{(2y-4)}{6} = \frac{(3z-9)}{12}$

$\frac{x - 1 - (2y-4) + (3z-9)}{2 - 6 + 12} = \frac{x - 1}{8}$

$\frac{x - 2y + 3z + (-1+4-9)}{8} = \frac{14 + -6}{8} = \frac{8}{8} = 1$

$\frac{x-1}{2} = 1 \Rightarrow \frac{x-1}{2}$

$\frac{y-2}{3} = 1 \Rightarrow \frac{y-2}{3}$

$\frac{z-3}{4} = 1 \Rightarrow \frac{z-3}{4}$

e) $\frac{x}{3} = \frac{y}{4}$ và $xy = 48$

$\frac{x \cdot y}{3 \cdot 4} = \frac{48}{12} = \frac{24}{6} = \frac{12}{3} = 4$

Thứ ngày

$\frac{x}{3} = 4 \Rightarrow x = 12$

$\frac{y}{4} = 4 \Rightarrow x = 16$

b) $\frac{x}{2} = \frac{y}{3}$, $\frac{y}{5} = \frac{z}{4}$ và $x - y + z = -21$

$\frac{y}{5} = \frac{z}{4} = \frac{5z}{4} \cdot \frac{1}{3} = \frac{5z}{12}$ *

$\frac{x}{2} = \frac{y}{3} = \frac{5z}{12} = \frac{5x}{5.2x} = \frac{5.y}{5.3} = \frac{5.z}{5.12}$ *

$= \frac{5x}{5.2} - \frac{5.y}{5.3} + \frac{5.z}{5.12} = \frac{5.(x - y + z)}{5.(2 - 3 + 12)} = \frac{5.-21}{5.11} = \frac{-15}{55} = \frac{-21}{11}$

$\frac{x}{2} = \frac{-21}{11} \Rightarrow x = \frac{-42}{11}$

$\frac{y}{3} = \frac{-21}{11} \Rightarrow x = \frac{-63}{11}$

$\frac{5z}{12} = \frac{-21}{11} \Rightarrow x = \frac{252}{55}$

$\Rightarrow \begin{cases} \frac{x}{y} = \\ \frac{y}{11} \end{cases}$

Bài 4 $\begin{cases} \frac{x}{2} = \frac{y}{3} = \frac{z}{5} \\ \rightarrow y = \frac{3x}{2} ; z = \frac{5x}{2} \end{cases}$

d) $x^2 - 2.\left(\frac{3x}{2}\right)^2 + \left(\frac{5x}{2}\right)^2 = 44$

$x^2 - 2.\frac{9x^2}{4} + \frac{25x^2}{4} = 44$

$x^2 - \frac{9x^2}{2} + \frac{25x^2}{4} = 44$

$\frac{x^2}{1} - \frac{9x^2}{2} + \frac{25x^2}{4} = 44$

$\frac{4x^2}{4} - \frac{18x^2}{4} + \frac{25x^2}{4} = 44$

$* \frac{-14x^2}{4} + \frac{25x^2}{4} = 44$

$\frac{11x^2}{4} = 44$

$\frac{11}{4} . x^2 = 44$

$x^2 = 44 : \frac{11}{4}$

$x^2 = 44 \times \frac{4}{11}$

$x^2 = 16$

$x^2 = 4^2$

TH1: $x = 4 \rightarrow y = 6 ; z = 10$

TH2: $x = -4 \rightarrow y = -6 ; z = -10$

Thứ ngày

Bài 5:

a) $\frac{a}{b} = \frac{c}{d} = \frac{3a+2c}{3b+2d}$

$\Rightarrow \frac{a}{b} = \frac{c}{d} = \frac{3a}{3b} = \frac{2c}{2d} = \frac{3a+2c}{3b+2d}$

b) $\frac{ac}{bd} = \frac{a^2-c^2}{b^2-d^2}$

$\frac{a}{b} = \frac{c}{d} \Rightarrow \frac{a}{c} = \frac{b}{d} = \frac{ac}{c^2} = \frac{bd}{d^2} = \frac{a^2}{ac} = \frac{b^2}{bd}$

$\Rightarrow \frac{ac}{bd} = \frac{c^2}{d^2} = \frac{a^2}{b^2} = \frac{c^2+a^2}{d^2+b^2}$

c) $\frac{ab}{cd} = \frac{a^2+b^2}{c^2+d^2}$

$\frac{a}{b} = \frac{c}{d} = \frac{ab}{b^2} = \frac{cd}{d^2} = \frac{a^2}{ab} = \frac{c^2}{cd}$

$\Rightarrow \frac{ab}{cd} = \frac{b^2}{d^2} = \frac{a^2}{c^2} = \frac{a^2+b^2}{c^2+d^2}$