Bài 1

a) $7,3 \cdot 10,5 + 7,3 \cdot 15 + 2,7 \cdot 10,5 +$

$2,7 \cdot 15$

$= 7,3.(10,5 + 15) + 2,7.(10,5+15)$

$= (7,3 + 2,7).(10,5+15)$

$= 10 . 25,5$

$= 255$

b) $5,4 - 1,5 - 7,2 - 1$

$= 3,9 - 7,2 - 1$

$= -4,7 - 1$

$= -5,7$

c) $6 + 3^2 . 2 - 6.3^2$

$3^2 + 3.3^2 - 3^4$

$= 6 + 3^2.(2-6)$

$\dfrac{3^2.3 - 3^4}{3.3}$

$= 6 + 3^2 . -4$

c) $6 + 3^2 . 2 - 6.3^2$

$3^2 + 3.3^2 - 3^4$

$= \dfrac{6 + 9.2 - 6.2}{9 + 3.9 - 81}$

$= \dfrac{6 + 18 - 12}{9 + 27 - 81}$

$= \dfrac{24 - 12}{36 - 81}$

$= \dfrac{12}{-45}$

$= \dfrac{-12}{45}$

Bài 2

a) $4x - 9.\left(2,5 + \dfrac{-7}{3}x\right) = 0$

$\dfrac{81}{-36}$

$$\left[\begin{array}{l} 4x - 9 \doteq 0 \implies 4x = 9 \\ \\ 2,5 + \dfrac{-7x}{3} = 0 \implies \dfrac{-7}{3}x = -2,5 \end{array}\right.$$

$$\implies \left[\begin{array}{l} 4x = x = \dfrac{9}{4} \\ \\ x = \dfrac{15}{14} \end{array}\right.$$

Vậy $x \in \left\{ \dfrac{9}{4} ; \dfrac{15}{14} \right\}$

b) $\dfrac{x+2}{3} = \dfrac{x+7}{8}$

$\implies (x+2) 8 = (x+7) 3$

$\implies 8x + 16 = 3x + 27$

$\implies 8x - 3x = 27 - 16$

$\implies 5x = 11$

$\implies x = \dfrac{11}{5}$

Vậy $x = \dfrac{11}{5}$

c) $\dfrac{11}{4} + \dfrac{3}{2} : \left(4x - \dfrac{1}{5} \right) = \dfrac{7}{2}$

$\implies \dfrac{3}{2} : \left(4x - \dfrac{1}{5} \right) = \dfrac{11}{4} - \dfrac{7}{2}$

$b \qquad \dfrac{3}{2} : \left(4x - \dfrac{1}{5} \right) = \dfrac{-3}{4}$

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

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

Mà $\left|4x - \frac{1}{5}\right| \geq 0$

$\Rightarrow x \in \varnothing$

Vậy $x \in \varnothing$

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

$\Rightarrow 5^x \cdot (1 + 25) = 650$

$\Rightarrow 5^x \cdot 26 = 650$

$\Rightarrow 5^x = 25$

$\Rightarrow 5^x = 5^2$

$\Rightarrow x = 2$

Vậy $x = 2$

d) $x^2 + x = 0$

$\Rightarrow x \cdot (x+1) = 0$

$$\Rightarrow \left[\begin{array}{l} x = 0 \\ x + 1 = 0 \end{array} \right. \Rightarrow \left[\begin{array}{l} x = 0 \\ x = -1 \end{array} \right.$$

Vậy $x \in \{0 ; -1\}$

f) $(x-5)^{x+1} - (x-5)^{x+3} = 0$

Bài 3

a) $x : y : z = 3 : 4 : 5 \qquad x + y + z = 24$

$\Rightarrow \dfrac{x}{3} = \dfrac{y}{4} = \dfrac{z}{5}$

Áp dụng tính chất dãy tỉ số bằng nhau ta có

$\dfrac{x}{3} = \dfrac{y}{4} = \dfrac{z}{5} = \dfrac{x+y+z}{3+4+5} = \dfrac{24}{12} = 2$

$\frac{6\,50}{52}\Big/\frac{26}{2}$
130

6   ★: $\frac{1}{1}$ + ★: 2   6: 3

6+3 +2¹ +2 ×3   ☀ ⛅ ☂

Thứ
Ngày   /   / No

$$\begin{cases} \dfrac{x}{3} = 2 \Rightarrow x = 6 \\ \dfrac{y}{4} = 2 \Rightarrow y = 8 \\ \dfrac{z}{5} = 2 \Rightarrow z = 10 \end{cases}$$

b) $7x = 10y = 12z$ { $x+y+z = 685$

$\Rightarrow 7x = 10y = 12z$

$\Rightarrow x = \dfrac{10}{7}y$

$\Rightarrow z = \dfrac{10}{12}y = \dfrac{5}{6}y$

$\Rightarrow x + y + z = 685 \Rightarrow \dfrac{10}{7}y + y + \dfrac{5}{6}y = 685$

$\Rightarrow$ b) $7x = 10y = 12z$ $x+y+z = 685$

Đặt $7x = 10y = 12z = k$

$\Rightarrow \begin{cases} x = \dfrac{k}{7} \quad k:7 \\ y = \dfrac{k}{10} \quad k:16 \\ z = \dfrac{k}{12} \quad k:12 \end{cases}$

$\Rightarrow x+y+z = k:7 + k:16 + k:12 = 685$

$\Rightarrow x+y+z = k \cdot (7 + 16 + 12) = 685$

$\Rightarrow x + y + z = k:$

c) $\dfrac{2x}{3} = \dfrac{3y}{4} = \dfrac{42}{5}$ và $x+y-z = 38$

$$\Rightarrow \frac{2x}{72} = \frac{3y}{96} = \frac{4z}{120}$$

$$\Rightarrow \frac{x}{36} = \frac{y}{32} = \frac{z}{30}$$

Áp dụng tính chất dãy Tỉ số bằng nhau

$$\frac{x}{36} = \frac{y}{32} = \frac{z}{30} = \frac{x+y-z}{36+32-30} = \frac{38}{38} = 1$$

$$\begin{cases} \frac{x}{36} = 1 \Rightarrow x = 36 \\ \frac{y}{32} = 1 \Rightarrow y = 32 \\ \frac{z}{30} = 1 \Rightarrow z = 30 \end{cases}$$

Vậy $x = 36; \ y = 32; \ z = 36$

d) $\dfrac{xy+1}{9} = \dfrac{xz+2}{15} = \dfrac{yz+3}{27}$

$xy + xz + yz = 11$

Áp dụng tính chất dãy Tỉ số bằng nhau

Ta có:

$$\frac{xy+1}{9} = \frac{xz+2}{15} = \frac{yz+3}{27} = \frac{xy+1 + xz+2 + yz+3}{9 + 15 + 27}$$

$$= \frac{17}{51} = \frac{1}{3}$$

$$\begin{cases} \dfrac{xy+1}{9} = \dfrac{1}{3} \Rightarrow xy = 2 \\ \dfrac{xz+2}{15} = \dfrac{1}{3} \Rightarrow xz = 3 \\ \dfrac{yz+3}{27} = \dfrac{1}{3} \Rightarrow yz = 6 \end{cases}$$

2) $(x.y.z)^2 : 2.3.x = 36$

$\Rightarrow x.y.z = 6$

$\Rightarrow x = 6 : 6 = 1$

$\Rightarrow y = 6 : 3 = 2$

$\Rightarrow z = 6 : 2 = 3$

Vậy $x = 1 ; y = 2 ; z = 3$

Bài 4

1 lít dầu nặng :

$12 : 15 = 0,8 (kg)$

55 lít dầu nặng là :

$0,8 . 55 = 44 (kg)$

Vậy 55 lít dầu nặng 44 kg

Bài 8.

$M = \dfrac{19^{30}+5}{19^{31}+5}$ và $N = \dfrac{19^{31}+5}{19^{32}+5}$

$\Rightarrow 19M = \dfrac{19^{31}+95}{19^{31}+5} \Rightarrow 19M = \dfrac{19}{19^{31}+5}$

$19N = \dfrac{19^{32}+95}{19^{32}+5} \Rightarrow 19N = \dfrac{19}{19^{32}+5}$

Vì $19 = 19$

Mà $19^{31}+5 < 19^{32}+5$

$\Rightarrow 19M > 19N$

$\Rightarrow M > N$