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SCUOLA Liceo scientifico IA

CLASSE

MATERIA MATEMATICA 

ANNO SCOLASTICO 2023/2024

NUMERI INTERI RELATIVI

P. 41

n. 369

$$+2 + (-3) = -1$$

$$-2 + (-4) = -6$$

$$+10 + (-8) = 18$$

$$0 + (-3) = -3$$

n. 371

$$-8 + (-5) + (+4) = -13 + 4 = -9$$

$$(-5) + 0 + (-2) = -7$$

$$\cancel{1} + \cancel{+1} + 0 = 0$$

$$-1 + (-5) + (-4) = -10$$

n. 373

$$-3 - (+4) = -7$$

$$+2 - (-5) = 7$$

$$-7 - (-2) = -5$$

$$10 - (+6) = 4$$

n. 377

$$(-3) \cdot (+3) = -9$$

$$(-2) \cdot (-6) = 12$$

$$(+4) \cdot (-3) = -12$$

n. 379

$$(+3) \cdot (-3) \cdot (-10) = +90$$

$$(-7) \cdot (+3) \cdot (-1) = +21$$

$$(-8) \cdot (-3) \cdot (-2) = -24$$

n. 381

$$(-1-4) \cdot (-1+3) \cdot (-5) = -5 \cdot 2 \cdot -5 = -10 \cdot -5 = -15$$

$$(-5+7) \cdot (-3-4) \cdot (+10) = 2 \cdot (-7) \cdot 10 = -140$$

$$(-6-3) \cdot (-3-0) \cdot (-1-1) = -9 \cdot (-3) \cdot (-2) = -54$$

n. 383

$$(-9) : (+3) = -3$$

$$(-12) : (-6) = 2$$

$$(+8) : (-2) = -4$$

n. 385

$$(+16) : (-8) : (-2) = 1$$

$$(-30) : (+3) : (-5) = 2$$

$$(-100) : (+25) : (-2) = 2$$

n. 387

$$(-2 - 10) : (-9 + 2) : (-1) = -16 : (-2) : (-1) = -8$$

$$(+20 - 5) : (-9 + 1) : (-5) = 15 : (-3) : (-5) = 1$$

$$(+100 - 9) : (-9 + 1) : (-1 - 1) = 96 : (-3) : (-2) = 16$$

n. 389 $a = -12$ $b = 3$

$$-12 + 3 = -9$$

$$-12 - (3) = -15$$

$$+3 - (-12) = 3 + 12 = 15$$

$$-12 \cdot 3 = -36$$

$$-12 : 3 = -4$$

$$-12(-12 - 3) = -12(-15) = 180$$

$$3(3 - 12) = 3(-9) = -27$$

$a = -2$ $b = -9$

$$-2 + (-9) = -11$$

$$-2 - (-9) = -2 + 9 = +7$$

$$-9 - (-2) = -9 + 2 = -7$$

$$-2 \cdot (-9) = 18$$

$$-9 : (-2) = 4.5$$

$$-2[-2 - (-9)] = -2[-2 + 9] = -2[7] = -14$$

$$-9[-9 - (-2)] = -9[-9 + 2] = -9[-7] = 63$$

$$a = 7 \quad b = 9$$

$$7(7-9) = 7(-2) = -14$$

$$9(9-7) = 9(2) = 18$$

$$a = 15 \quad b = -5$$

$$15 + (-5) = 10$$

$$15 - (-5) = 20$$

$$-5 - 15 = -20$$

$$15[15 - (-5)] = 15[15 + 5] = 15 \cdot 20 = 300$$

$$-5[-5 - 15] = -5[-20] = -5 \cdot -20 = 100$$

n. 391

$$|(-3) - (+7) - (-2)| - (+2) \cdot |(+3) \cdot (-2)| =$$

$$= |-3 - 7 + 2| - 2 \cdot |-6| =$$

$$= |-10 + 2| - 2 \cdot 6 =$$

$$= |-8| - 12 =$$

$$= 8 - 12 =$$

$$= -4$$

$$-|(-1) \cdot (-2) + (-6)| + |(-2) + |-3| \cdot (+2)| =$$

$$= -|2 - 6| + |-2 + 3 \cdot (+2)| =$$

$$= -|-2| + |-2 + 6| =$$

$$= -2 + 4 =$$

$$= 2$$

$$|(+9) : (-3) + (+1)| - 0 : |(+3) : (+1)| =$$

$$= |-3 + 1| - 0 : |3| =$$

$$= |-2| - 0 : 3 =$$

$$= 2 - 0 : 3 =$$

$$= 2 - 0 =$$

$$= 2$$

$$6 + 6 : (2 + 2 \cdot 2) = 7$$

COMPITI PER CASA n. 170

$$\begin{aligned} & [(24 : (2 + 3 \cdot 2) + 100 : (2^2 + 4^2)) : (120 : 10)] = \\ & = [(24 : (2 + 6) + 100 : (4 + 16)) : 12] = \\ & = [(24 : 8 + 100 : 20) : 12] = \\ & = [3 + 5] : 12 = \\ & = 8 : 12 = \\ & = 96 \end{aligned}$$

n. 180

$$\begin{aligned} & (2^4 - 2^2 - 2^0) : 2^0 = \\ & = 2^4 - 2^2 - 2^0 = \\ & = 16 - 4 - 1 = \\ & = 11 \end{aligned}$$

n. 200

$$\begin{aligned} & [(3^2 - 2^4 \cdot 2^2)^2 \cdot 5^{10}] : (5^5)^2 - (5 \cdot 2)^4 : [(10^5 \cdot 10^4) : 10^5] - 10 \cdot 11^0 = \\ & = [(3^2 - 2^2)^2 \cdot 5^{10}] : 5^{10} - 10^4 : [10^9 : 10^5] - 10 \cdot 1 = \\ & = [(9 - 4)^2 \cdot 5^{10}] : 5^{10} - 10^4 : [10^4] - 10 = \\ & = [5^2 \cdot 5^{10}] : 5^{10} - 10^0 - 10 = \\ & = 5^2 : 5^{10} - 1 - 10 = \\ & = 5^2 - 1 - 10 = \\ & = 25 - 1 - 10 = \\ & = 14 \end{aligned}$$

n. 210

$$\begin{aligned} & \left[(3^{24} : 3^{12} : 3^3 : 3^2 : 3) : (3^{23} : 3^{12} : 3^3 : 3^2 : 3) \right] : \left[(3^{26} : 2^{16} : 2^6 : 2^2) : (3^{23} : 2^{16} : 2^6 : 2^2) \right] \\ &= \left[3^6 : 3^0 \right] : \left[(3^{24} \cdot 2^{20}) : (3^{23} \cdot 2^{20}) \right] \\ &= 3 : \left[3 \cdot 2^0 \right] = \\ &= 3 : \left[3 \cdot 1 \right] = \\ &= 3 : 3 = \\ &= 1 \end{aligned}$$

n. 374

$$\begin{aligned} -3 - (+8) &= -3 - 8 = -11 \\ -10 - (+5) &= -10 + 5 = 5 \\ -1 - (+9) &= -1 - 9 = -10 \\ +20 - (+30) &= 20 - 30 = -10 \end{aligned}$$

n. 378

$$\begin{aligned} (-2) \cdot (+9) &= -18 \\ (-5) \cdot (-2) &= 10 \\ (-9) \cdot (-5) &= 45 \end{aligned}$$

n. 380

$$\begin{aligned} (-6) \cdot (+2) \cdot (-10) &= 120 \\ (-2) \cdot (-6) \cdot (-3) &= -36 \\ (+4) \cdot (-1) \cdot (+8) &= -32 \end{aligned}$$

n. 384

$$\begin{aligned} (-9) : (+7) &= -\frac{9}{7} \\ (-15) : (-5) &= 3 \\ (-16) : (-4) &= 4 \end{aligned}$$

n. 386

$$\begin{aligned} (+36) : (-9) : (+3) &= -4 \\ (+130) : (+13) : (-2) &= -5 \\ (-300) : (-3) : (-25) &= -4 \end{aligned}$$

461

$$\begin{aligned} & (-4)^8 : [(+2)^3]^4 = \\ & = (2^2)^8 : 2^{12} = \\ & = 2^{16} : 2^{12} = \\ & = 2^4 = 16 \end{aligned}$$

462

$$\begin{aligned} & (-125)^3 : (-25)^4 = \\ & = -(5^3)^3 : (5^2)^4 = \\ & = -5^9 : 5^8 = \\ & = -5 \end{aligned}$$

463

$$\begin{aligned} & (-27)^4 : [(-3)^5]^2 = \\ & = (3^3)^4 : (3^5)^2 = \\ & = 3^{12} : 3^{10} = \\ & = 3^2 = 9 \end{aligned}$$

464

$$\begin{aligned} & (-49)^3 : (+7)^5 = \\ & = \ominus(7^2)^3 : 7^5 = \\ & = -7^6 : 7^5 = \\ & = -7 \end{aligned}$$

465

$$\begin{aligned} & (-2)^{10} : (-2)^8 \cdot (+2)^2 = \\ & = 2^{10} : 2^8 \cdot 2^2 = \\ & = 2^2 \cdot 2^2 = \\ & = 2^4 = 16 \end{aligned}$$

484

$$\begin{aligned} & [(-2) - (-2)^2 - (-3)^3] : (-7) = \\ & = [-2 - 4 - (-27)] : (-7) = \\ & = 21 : (-7) = -3 \end{aligned}$$

188

$$\begin{aligned} & (-3)^2 - [-3 - (-3)^3] : (-3) = \\ & = 9 - [-3 - (-27)] : (-3) = \\ & = 9 - [-3 + 27] : (-3) = \\ & = 9 - [24] : (-3) = \\ & = 9 - 24 : (-3) = \\ & = 9 + 8 = \\ & = 17 \end{aligned}$$

P. 26 n. 460

$$\begin{aligned} & (-4)^{10} : (4^4)^2 = \\ & = 4^{10} : 4^8 = \\ & = 4^2 = 16 \end{aligned}$$

n. 470

$$\begin{aligned} & [(-10)^3]^2 \cdot (-100)^6 : (1000)^5 = \\ & = 10^6 \cdot (10^2)^6 : (10^3)^5 = \\ & = 10^6 \cdot 10^{12} : 10^{15} = \\ & = 10^{18} : 10^{15} = \\ & = 10^3 = 1000 \end{aligned}$$

n. 480

$$\begin{aligned} & -(-1-8) + (-6-3) - (-8+6) + (-7+8) = \\ & = +1+8 - 6 - 3 + 8 - 6 - 7 + 8 = \\ & = 25 - 22 = \\ & = 3 \end{aligned}$$

n. 490

$$\begin{aligned} & [(-10)^2 + (-10)] : (-3)^2 - [(-10)^2 - (-10)] : (-11) = \\ & = [100 + (-10)] : 9 - [100 + 10] : (-11) = \\ & = 90 : 9 - 110 : (-11) = \\ & = 10 - (-10) = \\ & = 10 + 10 = 20 \end{aligned}$$

n. 500

$$\begin{aligned} & (+3) \cdot (-4) - [(-2)(-1)(-3) - (-3+1)] \cdot [(-2)(+3) - (-2) + (-1)(-3)(+2)] \\ &= -12 - [-6 + 3 - 1] \cdot [-6 + 2 + 6] = \\ &= -12 - [-4] \cdot [2] = \\ &= -12 + 4 \cdot 2 = \\ &= -12 + 8 = \\ &= -4 \end{aligned}$$

n. 510

$$\begin{aligned} & [(-s)^9 - (-s)^7] : (s^7 - 2 \cdot s^6 - 3 \cdot s^5) = \\ &= [5^2 \cdot (-s)^7 - 1 \cdot (-s)^7] : (5^2 \cdot s^5 - 2 \cdot 5 \cdot s^5 - 3 \cdot s^5) = \\ &= [29 \cdot (-s)^7] : (12 \cdot s^5) = \\ &= \frac{29 \cdot (-s)^7}{12 \cdot s^5} = \\ &= 2 \cdot (-5)^2 = \\ &= 2 \cdot (-25) = \\ &= -50 \end{aligned}$$

n. 520

$$\begin{aligned} & [(-2)^2 + (-3)] \cdot (-1) + [(+3)^3 \cdot (-3)^8] : (-3)^9 + [(-2)^3]^2 : (-2)^4 = \\ &= [4 - 3] \cdot (-1) + [+(3)^{11}] : (-3^9) + 2^6 : (-2)^4 = \\ &= 1 \cdot (-1) + 3^{11} : (-3^9) + (2)^2 = \\ &= -1 - (3)^2 + 4 = \\ &= -1 - 9 + 4 = \\ &= -10 + 4 = -6 \end{aligned}$$

n. 530

$$\begin{aligned} & \{ [(4^7 \cdot 4^8) : 4^{13}]^2 \}^3 : (-4)^{12} + [(-2)^{28} : 2^{17}]^0 + \{ -[(5^2 - 4^2)^5 : (-3)^{10}] \}^{\prime\prime} = \\ & = \{ [4^{15} : 4^{13}]^2 \}^3 : (-4)^{12} + 1 + \{ -[(25 - 16)^5 : (+3)^{10}] \}^{\prime\prime} = \\ & = \{ [4^2]^2 \}^3 : (-4)^{12} + 1 + \{ -[9^5 : (+3)^{10}] \}^{\prime\prime} = \\ & = 4^{12} : (-4)^{12} + 1 + \{ -[3^{2 \cdot 5} : (+3)^{10}] \}^{\prime\prime} = \\ & = 4^0 + 1 + \{ -[3^{10} : (+3)^{10}] \}^{\prime\prime} = \\ & = 1 + 1 + \{ -[+1] \}^{\prime\prime} = \\ & = 1 + 1 + \{ -[+1] \}^{\prime\prime} = \\ & = 1 + \cancel{1} - \cancel{1} \quad \hookrightarrow - \\ & = 1 \end{aligned}$$

n. 560

$$\begin{aligned} & [+3 - (+5) + (-4) - (-2)]^3 = \\ & = [3 - 5 - 4 + 2]^3 = \\ & = [-4]^3 = \\ & = -64 \end{aligned}$$

n. 550

$$a = -5 \quad b = -10$$

$$A. |-5 - (-10)| = |-5 + 10| = |5| = 5$$

$$B. |-5 + (-10)| = |-5 - 10| = |-15| = 15$$

$$C. -5^{|-10|} = -5^{10} = -5^{10}$$

$$D. |(-5)^2 - (-10)^2| = |25 - (+100)| = |25 - 100| = |-75| = 75$$

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n. 461

$$\begin{aligned} & (-4)^8 : [(+2)^3]^4 = \\ & = 4^8 : 2^{12} = \\ & = [(2)^2]^8 : 2^{12} = \\ & = 2^{16} : 2^{12} = \\ & = 2^4 = 16 \end{aligned}$$

n. 466

$$\begin{aligned} & (-3)^{11} : (+3)^9 \cdot (+3)^2 = \\ & = (-3)^{11} : 3^9 \cdot 3^2 = \\ & = -(3)^2 \cdot 3^2 = \\ & = -3^4 \cdot 3^2 = -3^6 = -81 \end{aligned}$$

n. 476

$$\begin{aligned} & (-2+3) - (-1-6) + (-8+9) - (-7+9) = \\ & = 1 + 1 + 6 - 8 + \cancel{9} + 7 - \cancel{9} = \\ & = 7 \end{aligned}$$

n. 481

$$\begin{aligned} & (-5+9) - (-12+13) - (-8+10) - (-9+19) - (-6-1) = \\ & = \cancel{-4} + 12 - 13 + 8 - 10 + 9 - 19 + 6 \cancel{-1} = \\ & = -7 \end{aligned}$$

n. 491

$$\begin{aligned} & [(-1)(+3)(-2) - (-2)(-3)(-1)]^2 - [(-1)(+3)(-2) + (-2)(-3)(-1)]^2 = \\ & = [6 - (-6)]^2 - [6 + (-6)]^2 = \\ & = [6 + 6]^2 - [6 - 6]^2 = \\ & = 12^2 - 0^2 = \\ & = 144 \end{aligned}$$

n. 496

$$\begin{aligned} & \{(-100) : [(-6)(+2) + 2] + (-50) : [25 + (+5) \cdot (-4)]\} \cdot (-2) = \\ & = \{(-100) : [-12 + 2] + (-50) : [25 - 20]\} \cdot (-2) = \\ & = \{(-100) : (-10) + (-50) : 5\} \cdot (-2) = \\ & = \{10 - 10\} \cdot (-2) = \\ & = 0 \cdot (-2) = \\ & = 0 \end{aligned}$$

n. 501

$$\begin{aligned} & [(-2)^3(-4)^4 + (-2)^5(-4)^2] : (-8)^3 = \\ & = [(-2)^3(2^2)^4 + (-2)^5(2^2)^2] : -(2^3) = \\ & = [-2^{11} + -2^9] : -2^9 = \\ & = \frac{[-2^{11} - 2^9]}{-2^9} = \\ & = +2^2 + 2^0 = 4 + 1 = 5 \end{aligned}$$

n. 506

$$\begin{aligned} & [63 \cdot (-10)^{10}] : [(-10)^{10} + 8(-10)^9 + (-10)^8] = \\ & = [63 \cdot 10^{10}] : [+10^2 \cdot (-10)^8 - 8 \cdot 10^1(-10)^8 + 1 \cdot (-10)^8] = \\ & = [63 \cdot 10^{10}] : [21 \cdot (-10)^8] = \\ & = 3 \cdot 10^2 = 300 \end{aligned}$$

n. 511

$$\begin{aligned} & [(-2)^6 \cdot (-2)^4]^2 : [(-2)^{30} : (-2)^{17}]^5 = \\ & = [2^6 \times 2^4]^2 : [2^3]^5 = \\ & = 2^{10} : 2^{15} = \\ & = 2^5 = 32 \end{aligned}$$

n. 516

$$\begin{aligned} & [(-2)^2 \cdot (-2)^5]^3 : (-2)^{17} + (-12) : (-2)^2 = \\ & = [-2^7]^3 : (-2)^{17} + (-12) : 4 = \\ & = -2^{21} : (-2)^{17} + (-3) = \\ & = 2^4 - 3 = \\ & = 16 - 3 = \\ & = 13 \end{aligned}$$

n. 521

$$\begin{aligned} & (-12) : [(-3)^2 + (-2)^7 : (-2)^4 + (-2)^0] - [(-2)^{10} (-2)^3] : (-2)^{11} = \\ & = (-12) : [3^2 + (-2)^3 + 1] - [(-2)^{13}] : (-2)^{11} = \\ & = (-12) : [9 - 8 + 1] - [2^{13}] : (-2)^{11} = \\ & = (-12) : 2 + [-2^2] = \\ & = -6 - 4 = -10 \end{aligned}$$

n. 526

$$\begin{aligned} & [(-3)^7 : (-3)^3]^2 : (-8)^2 + (-3)^8 : (-3)^6 = \\ & = [3^4]^2 : 8^2 + 3^2 = \\ & = 3^8 : 3^8 + 9 = \\ & = 3^0 + 9 = \\ & = 10 \end{aligned}$$

n. 531

$$\begin{aligned} & \{ [(-20)^9 : (-20)^5]^2 : [(-10)^4]^2 \} : (-2)^6 + [(-2)^5 : (7)^5]^2 : (-3)^7 = \\ & = \{ [20^4]^2 : 10^8 \} : 2^6 + [(-2)^5 : (7)^5]^2 : (-3)^7 = \\ & = \{ 20^8 : 10^8 \} : 2^6 + 3^{10} : (-3)^7 = \\ & = 2^8 : 2^6 - (3)^3 = \\ & = 2^2 - 3^3 = \\ & = 4 - 27 = \\ & = -23 \end{aligned}$$

n. S36

$$\begin{aligned} & [(2)^2 + (-2)^3] : (10 - 9) = \\ & = [4 - 2^3] : (-9) = \\ & = [4 - 8] : (-9) = \\ & = (-4) : (-9) = \\ & = 1 \end{aligned}$$

n. S56

$$\begin{array}{r|l} 176 & 2 \\ 88 & 2 \\ 296 & 2 \\ 197 & 3 \\ 497 & 7 \\ 77 & 7 \\ 1 & \end{array}$$

$$\begin{array}{r|l} 28 & 2 \\ 14 & 2 \\ 7 & 7 \\ 1 & \end{array}$$

$$\begin{aligned} & 2^3 \cdot 3 \cdot 7^2 : 2^2 \cdot 7 \\ & 2 \cdot 3 \cdot 7 = 42 \end{aligned}$$

n. S61

$$\begin{aligned} & (-2)^3 : (-9) - (-2)^2 : (-2)^8 + (-6)^2 : (-9) = \\ & = (-2)^3 : -(2)^2 + 2^2 : (+2)^8 + 6^2 : (-9) = \\ & = +2 + 2^3 - 9 = \\ & = +2 + 8 - 9 = \\ & = 6 \end{aligned}$$

P. 46 n. 462

$$\begin{aligned} & (-125)^3 : (-25)^4 = \\ & = -[(5^3)^3] : +[(5^2)^4] = \\ & = -5^9 : 5^8 = \\ & = -5 \end{aligned}$$

n. 469

$$\begin{aligned} & (-125)^7 : (-25)^{10} \cdot (-5)^2 = \\ & = -[(5^3)^7] : [(5^2)^{10}] \cdot 5^2 = \\ & = -5^{21} : 5^{20} \cdot 5^2 = \\ & = -5 \cdot 5^2 = \\ & = -5^3 = -125 \end{aligned}$$

n. 467

$$\begin{aligned} & (-81)^6 \cdot (3)^3 : (-3)^{16} = \\ & = [(3^4)^6] \cdot 3^3 : 3^{16} = \\ & = 3^{16} \cdot 3^3 : 3^{16} = \\ & = 3^3 : 3^0 = \\ & = 3^3 = 27 \end{aligned}$$

n. 477

$$\begin{aligned} & (-9+3) + (-2-3) - (-6+9) - (-8+5) = \\ & = -9 + \cancel{3} - 2 - \cancel{3} + 6 - 9 + 8 - 5 = \\ & = -1 \end{aligned}$$

n. 482

$$\begin{aligned} & 2 - (-1+3) + (-6+9) - [(-3+9) - (-7+5) + (-2-1)] = \\ & = \cancel{2} + \cancel{1} - \cancel{3} + (-2) - [\cancel{1} + \cancel{7} - 5 - \cancel{2} - \cancel{1}] = \\ & = -2 - [0] = \\ & = -2 - 0 = \\ & = -2 \end{aligned}$$

n. 987

$$\begin{aligned} & [(-2) - (-2)^2 - (-3)^3] : (-7) = \\ & = [-2 - (+2)^2 + 27] : (-7) = \\ & = [-2 - 4 + 27] : (-7) = \\ & = +21 : (-7) = \\ & = -3 \end{aligned}$$

n. 992

$$\begin{aligned} & (-100) : [(-6)(+2) - (+5)(-4) + (-3+1) \cdot (-1)] = \\ & = (-100) : [-12 - (-20) + (-2) \cdot (-1)] = \\ & = (-100) : [-12 + 20 + 2] = \\ & = (-100) : 10 = \\ & = -10 \end{aligned}$$

n. 997

$$\begin{aligned} & [(-4) \cdot (-3) - (-2)(-1)] : 5 - [-3+1] \cdot [(-2+3) - (-1+4)(-2-1)] = \\ & = [12 - 2] : 5 - [-2] \cdot [1 - (3)(-3)] = \\ & = 10 : 5 + 2 \cdot [1+9] = \\ & = 2 + 2 \cdot 10 = \\ & = 2 + 20 = \\ & = 22 \end{aligned}$$

n. 502

$$\begin{aligned} & [5 \cdot (-3)^{12} + 6 \cdot (-3)^{10} + 6 \cdot (-3)^{11}] : (-3)^{10} = \\ & = [5 \cdot 3^{12} + 6 \cdot 3^{10} + 6 \cdot (-3)^{11}] : (-3)^{10} = \\ & = [5 \cdot 3^2 \cdot 3^{10} + 6 \cdot 3^{10} - 6 \cdot 3 \cdot (3^{10})] : 3^{10} = \\ & = [33 \cdot \cancel{3^{10}}] : \cancel{3^{10}} = \\ & = 33 \end{aligned}$$

n. 507

$$\begin{aligned} & \{ [(-5)^{12} + (+5)^{10} - (-5)^9] : (-5)^6 \} : (-5)^3 = \\ & = \{ [5^{12} + 5^{10} + 5^9] : 5^6 \} : (-5)^3 = \\ & = \{ [5^3 \cdot 5^9 + 5 \cdot 5^9 + 1 \cdot 5^9] : 5^6 \} : (-5)^3 = \\ & = \{ [131 \cdot 5^9] : 5^6 \} : (-5)^3 = \\ & = \{ 131 \cdot 5^3 \} : (-5)^3 = \\ & = -131 \end{aligned}$$

n. 812

$$\begin{aligned} & (-12)^2 : (-9) + (-12)^{10} : [(-12)^2 \cdot (-12)^3]^2 = \\ & = 12^2 : (-9) + 12^{10} : [(-12)^5]^2 = \\ & = -99 : (-9) + 12^{10} : (12)^{10} = \\ & = -36 + 12^0 = \\ & = -36 + 1 = \\ & = -35 \end{aligned}$$

n. 517

$$\begin{aligned} & (-3)^2 - (-3)^0 - [(-2)^3 \cdot (-2)^9] : [(-2)^6]^3 = \\ & = 9 - (+1) - [(-2)^{12}] : 2^{18} = \\ & = 9 - 1 - [2^{12}] : 2^{18} = \\ & = 9 - 1 - 2^{22} : 2^{18} = \\ & = 9 - 1 - 2^4 = \\ & = 9 - 1 - 16 = \\ & = -8 \end{aligned}$$

n. 522

$$\begin{aligned} & \{ [-2 - (-2)^2 - (-2)^3] \cdot 2^{10} \} : (2^3)^3 - [(-3)^3 \cdot (-3)^{11}] : [(-3)^6]^2 = \\ & = \{ [-2 - 4 + 8] \cdot 2^{10} \} : 2^9 - [-3^{14}] : 3^{12} = \\ & = \{ 2 \cdot 2^{10} \} : 2^9 - 3^{14} : 3^{12} = \\ & = 2^2 : 2^9 + 3^2 = \\ & = 2^2 - 9 = \\ & = 4 - 9 = -5 \end{aligned}$$

n. S27

$$\begin{aligned} & [(-2s)^2 \cdot (-12s)]^4 : [(-s)^9]^3 - (-s)^2 - (-s)^3 = \\ & = [15s^2]^4 : (-s)^{27} - 6^2 + s^3 = \\ & = [s^8 \cdot (-s)^2]^4 : (-s)^{27} - s^2 + s^3 = \\ & = [-s^7]^4 : (-s)^{27} - s^2 + s^3 = \\ & = +s^{28} : (-s)^{27} - 2s + 12s = \\ & = -s - 2s + 12s \\ & = 9s \end{aligned}$$

n. S32

$$\begin{aligned} & \{ [(-102)^7 \cdot (102)^8] : (-102)^{16} \} : (-3) - \{ (-s)^2 \cdot [-(-s)^6] \} : [-(-2s)^6] \\ & = \{ -102^{15} : (-102)^{16} \} : (-3) - \{ s^2 \cdot [+s^6] \} : [-(2s)^6] = \\ & = \{ -102 \} : (-3) - \{ s^2 \cdot (+s^6) \} : [+2s^6] = \\ & = 36 - \{ +s^8 \} : [+s^2] = \\ & = 36 - s^2 = \\ & = 36 - 2s = \\ & = 9 \end{aligned}$$

n. S37

$$\begin{aligned} & \left[\frac{-3 + (-13)}{(-2)^2} \right] + (-s) = \\ & = \left(\frac{-3 - 13}{4} \right) - s = \\ & = [(-16) : 4] - s = \\ & = -4 - s = \\ & = -9 \end{aligned}$$

n. 597

$$\begin{aligned}(2^{11} + 2^9) : 4^4 &= \\ &= (2^2 \cdot 2^9 + 1 \cdot 2^9) : 2^8 = \\ &= 5 \cdot 2^9 : 2^8 = \\ &= 5 \cdot 2^1 = \\ &= 10\end{aligned}$$

n. 552

$$\text{mcm}(x, 20, 15) = 120$$

$$20 = 2^2 \cdot 5$$

$$15 = 3 \cdot 5$$

$$120 = \underline{2^3} \cdot \underline{3} \cdot 5$$

$$x = 8 \cdot 3 = 24 \text{ min}$$

n. 557

$$24 \cdot 18 = 3^3 \cdot 2^4$$

$$24 = 2^3 \cdot 3$$

$$18 = 2 \cdot 3^2$$

$$16 \cdot 9 \cdot 21 = 2^4 \cdot 3^3 \cdot 7$$

$$16 = 2^4$$

$$9 = 3^2$$

$$21 = 3 \cdot 7$$

$$15 \cdot 18 \cdot 20 = 2^3 \cdot 3^3 \cdot 25$$

$$15 = 3 \cdot 5$$

$$18 = 2 \cdot 3^2$$

$$20 = 2^2 \cdot 5$$

n. 562

$$\begin{aligned} & 1 - |(4) \cdot [-3 + (-1)]| = \\ & = 1 - |4 \cdot [-4]| = \\ & = 1 - |-16| = \\ & = 1 - 16 = \\ & = -15 \end{aligned}$$

P. 66

n. 463

$$\begin{aligned} & (-27)^4 : [(-3)^5]^2 = \\ & = 27^4 : 3^{10} = \\ & = (3^3)^4 : 3^{10} = \\ & = 3^{12} : 3^{10} = \\ & = 3^2 = 9 \end{aligned}$$

n. 668

$$\begin{aligned} & (-9)^4 \cdot (-2)^{10} : (-16)^3 = \\ & = (2^2)^4 \cdot 2^{10} : -(2^4)^3 = \\ & = 2^8 \cdot 2^{10} : -(2)^{12} = \\ & = 2^{18} : -(2)^{12} = \\ & = -2^6 = \\ & = -64 \end{aligned}$$

n. 678

$$\begin{aligned} & (+9-3) - (+2-3) + (-6-9) - (-9+5) = \\ & = 1 - 2 + 3 - 6 - 9 + 9 - 5 = \\ & = -9 \end{aligned}$$

n. 683

$$\begin{aligned} & (-1+3) - (-2-1) + [3 - (-1+9) - (-5+3)] - (-1) = \\ & = 2 + 3 + [\cancel{3} + 1 - 6 + 5 - \cancel{3}] + 1 = \\ & = 2 + 3 + [2] + 1 = \\ & = 2 + 3 + 2 + 1 = \\ & = 8 \end{aligned}$$

n. 688

$$\begin{aligned} & (-3)^2 - [-3 - (-3)^3] : (-3) = \\ & = 9 - [-3 + 27] : (-3) = \\ & = 9 - 24 : (-3) = \\ & = 9 + 8 = 17 \end{aligned}$$

n. 493

$$\begin{aligned} & [(-2)^2 + (-2)^3] \cdot (-9) + [10 - (-3+1)^2 \cdot (-2-1)] = \\ & = [4 - 8] \cdot (-9) + [10 - (-2)^2 \cdot (-3)] = \\ & = -4 \cdot (-9) + [10 - 4 \cdot (-3)] = \\ & = 1 + [10 + 12] = \\ & = 1 + 22 = \\ & = 23 \end{aligned}$$

n. 498

$$\begin{aligned} & [(-6-2)^2 : (-3-1) + (-7-3) : (+5) + (-2)^2] \cdot [(-9+3)(-3+2) - 9] = \\ & = [(-8)^2 : (-4) - 10 : (+5) + 4] \cdot [(-6)(-1) - 9] = \\ & = [12^6 : -2^2 - 2 + 9] \cdot [1 - 9] = \\ & = [-2^4 - 2 + 9] \cdot (-3) = \\ & = [-16 - 2 + 9] \cdot (-3) = \\ & = (-19) \cdot (-3) = \\ & = 42 \end{aligned}$$

n. 503

$$\begin{aligned} & \sum 5 \cdot [(-3)^4]^5 : [3^{18} + 2 \cdot 3^{16} - 12 \cdot (-3)^{15}] = \\ & = \sum 5 \cdot 3^{20} : [3^3 \cdot 3^{15} + 2 \cdot 3 \cdot 3^{15} + 12 \cdot 3^{15}] = \\ & = \sum 5 \cdot 3^{20} : [45 \cdot 3^{15}] = \\ & = \frac{5 \cdot 3^{20}}{45 \cdot 3^{15}} = \frac{3^5}{9} = 3^5 : 3^2 = 3^3 = 27 \end{aligned}$$

n. 508

$$\begin{aligned} & \sum [(-10)^3]^2 (-10)^6 - [(-10)^2]^4 (-10)^3 : (-100)^5 = \\ & = \sum 10^6 \cdot (+10)^6 - 10^8 \cdot (-10)^3 : - (10^5)^5 = \\ & = \sum 10^{12} + 10^{12} : - 10^{10} = \\ & = -10^2 - 10^2 = \\ & = -100 - 100 = -200 \end{aligned}$$

n. S08

$$\begin{aligned} & [(-9)^{11} \cdot (-9)^8] : (-9)^{17} + (-9)^{13} : [(-9)^6]^2 = \\ & = [4^9] : (-9)^{17} + (-9)^{13} : 2^{12} = \\ & = -9^2 - 9 = \\ & = +16 - 9 = \\ & = 12 \end{aligned}$$

n. S18

$$\begin{aligned} & -2 - [-1 - (-2)^2] + [-3]^6 : (-3)^3 + 6 - (-2)(+3)^0 = \\ & = -2 - [-1 - 4] - 3^3 + 6 + 2 \cdot 1 = \\ & = -2 + 5 - 27 + 6 + 2 = \\ & = -16 \end{aligned}$$

n. S23

$$\begin{aligned} & (-2)(-3) - \{[-1 - (-3)^6 : (-3)^3]^2 \cdot 2^7\} : 2^6 + (-2)^7 : (-2)^3 - (-2)^0 = \\ & = 6 - \{[-1 - (-3)^6 : (-3)^3]^2 \cdot 2^7\} : 2^6 + 2^6 - 1 = \\ & = 6 - \{[-1 - (-3)^6]^2 \cdot 2^7\} : 2^6 + 2^6 - 1 = \\ & = 6 - \{[-1 + 3]^2 \cdot 2^7\} : 2^6 + 2^6 - 1 = \\ & = 6 - \{2^2 \cdot 2^7\} : 2^6 + 2^6 - 1 = \\ & = 6 - 2^9 : 2^6 + 16 - 1 = \\ & = 6 - 2^3 + 16 - 1 = \\ & = 6 - 8 + 16 - 1 = \\ & = 13 \end{aligned}$$

n. S28

$$\begin{aligned} & \{[(-16)^6 : (-32)^3]^5 - (-2)^3\}^2 : (-6)^2 = \\ & = \{[16^6 : (-32)^3]^5 + 8\}^2 : 36 = \\ & = \{[2^{16} : -(2^5)^3]^5 + 8\}^2 : 36 = \\ & = \{[-2]^5 + 8\}^2 : 36 = \\ & = \{-32 + 8\}^2 : 36 = \\ & = \{-24\}^2 : 36 \\ & = 576 : 36 = 16 \end{aligned}$$

n. 533

$$\begin{aligned} & \{ [(-20) : (-5) + (-12) : (+3) + (-20) : (-10)]^9 \cdot (-2)^{10} \} : [-(1-2)^3]^5 = \\ & = \{ [4 - 4 + 2]^9 \cdot (2)^{10} \} : [-(1-2)^3]^5 = \\ & = \{ 2^9 \cdot 2^{10} \} : 2^{15} = \\ & = 2^{19} : 2^{15} = \\ & = 2^4 = \\ & = 16 \end{aligned}$$

n. 538

$$\begin{aligned} & 5 - [-(-6 - 5)] = \\ & = 5 - [-(-11)] = \\ & = 5 - [+11] = \\ & = 5 - 11 = \\ & = -6 \end{aligned}$$

n. 553

$$30 = 2 \cdot 3 \cdot 5$$

$$50 = 2 \cdot 5^2$$

$$\text{MCD}(30; 50) = 10$$

$$l = 10 \quad n^{\circ} = 3 \cdot 5 = 15 \text{ cubetti}$$

n. 558

a. -8 $-| -3 - (+9) | =$

$$-| -3 - 9 | =$$

$$-| -7 | =$$

$$-7$$

$$-8 < -7$$

b. $12 = 2^2 \cdot 3$ mcm = 60
 $5 = 5$
 $6 = 2 \cdot 3$

$$\begin{aligned} 6 &= 2 \cdot 3 \\ 10 &= 2 \cdot 5 \\ 8 &= 2^3 \end{aligned}$$

$$\text{mcm} = 120$$

$$c. (-3+5)^4 = (2)^4 = 16$$

$$(-5+3)^3 = (-2)^3 = -8$$

$$d. -|-4| = -4$$

$$(-3)^3 = -27$$

$$e. \begin{array}{l} 21 = 3 \cdot 7 \\ 36 = 2^2 \cdot 3^2 \\ 18 = 2 \cdot 3^2 \end{array} \quad \text{MCD} = 3$$

$$1-3 = -2$$

$$-2^0 = -1$$

$$f. (-2)(+3)(-5) = 30$$

$$g. |\text{MCD}(14; 16; 18) - \text{mcm}(9; 12)| \dots 7'$$

$$14 = 2 \cdot 7$$

$$16 = 2^4$$

$$18 = 2 \cdot 3^2$$

$$9 = 3^2$$

$$12 = 2^2 \cdot 3$$

$$|2 - 36|$$

$$34 > 7$$

$$i. -30 < -27$$

$$j. |6 - |3 - (-4)|| =$$

$$= |6 - |3 + 4|| =$$

$$= |6 - 7| =$$

$$= |-1| = 1$$

$$h. 563$$

$$|(-2)^2| + |(-2)^3| + (-3)^2 + (-3)^3 =$$

$$= 4 + 8 + 9 - 27 =$$

$$= -6$$

$$n. 597$$

$$1. [3^1 \cdot 3^3]^2 = [3^4]^2 = 3^8$$

$$2. 3 \cdot (3^5)^3 = 3 \cdot 3^{15} = 3^{16}$$

$$x = \frac{3^8 \cdot 3^{16}}{[3^8]^{1/2}} = \frac{3^{24}}{3^4} = 3^{20}$$

P. 46

n. 464

$$\begin{aligned} & (-49)^3 : (7)^5 = \\ & = -7^6 : 7^5 = \\ & = -7 \end{aligned}$$

n. 469

$$\begin{aligned} & (-125)^7 : (-25)^{10} \cdot (-5)^2 = \\ & = -5^{21} : 5^{20} \cdot 5^2 = \\ & = -5 \cdot 5^2 = \\ & = -5^3 = \\ & = -125 \end{aligned}$$

n. 479

$$\begin{aligned} & 1 - [-2 + (1-9) - (-7+5)] = \\ & = 1 - [-2 + 1 - 9 + 7 - 5] = \\ & = 1 - [-3] = \\ & = 1 + 3 = \\ & = 4 \end{aligned}$$

n. 480

$$\begin{aligned} & (-2+3) - (-3+1) - [4 - (-1+9) - (-3+3)] + (-1) = \\ & = -2+3+3-1 - [4+1-9+3-3] - 1 = \\ & = -2+3+3-1-1-1 = \\ & = 1 \end{aligned}$$

n. 489

$$\begin{aligned} & [(-9)^2 : (-3) - (-9)^2 : (-2) + (-5)(-3)]^3 = \\ & = [3^4 : (-3) - (21^6) : (-2) + 15]^3 = \\ & = [-3^3 - (-21^3 + 15)]^3 = \\ & = [-27 + 8 + 15]^3 = \\ & = [-9]^3 = \\ & = -60 \end{aligned}$$

n. 994

$$\begin{aligned} & \{ -10 - 2 \cdot [(-1+3)(-2-1) - (-3)(+2)(-2) - (-2)^3] \} : (-10) = \\ & = \{ -10 - 2 \cdot [2 \cdot (-3) - (+12) + 8] \} : (-10) = \\ & = \{ -10 - 2 \cdot [-6 - 12 + 8] \} : (-10) = \\ & = \{ -10 - 2 \cdot (-10) \} : (-10) = \\ & = \{ -10 + 20 \} : (-10) = \\ & = 30 : (-10) = \\ & = -3 \end{aligned}$$

n. 999

$$\begin{aligned} & (-9) \cdot (-3) - [(-12) \cdot (-2) - 9] : 5 - (-9+2) \cdot [(-1+9) \cdot (-2-1) + 11] = \\ & = 12 - [24 - 9] : 5 - (-9+2) \cdot [3 \cdot (-3) + 11] = \\ & = 12 - 20 : 5 - (-2) \cdot [-9 + 11] = \\ & = 12 - 4 + 2 \cdot 2 = \\ & = 12 - 4 + 4 = \\ & = 12 \end{aligned}$$

n. 504

$$\begin{aligned} & [(-3)^{12}(-9)^3 + (-3)^{13}(-9)^2] : (-3)^{15} = \\ & = [3^{12} \cdot -3^6 + (-3)^{13} \cdot 3^4] : (-3)^{15} = \\ & = [-3^{18} + (-3)^{17}] : (-3)^{15} = \\ & = [-3^{18} + 3^{17}] : (-3)^{15} = \\ & = 3^3 + 3^2 = \\ & = 27 + 9 = \\ & = 36 \end{aligned}$$

n. 509

$$\begin{aligned} & [(-2)^2(-3)^3]^2 : [(-3)^8 + 2(-3)^7 + 5(-3)^6] = \\ & = [2^2 \cdot (-3)^3]^2 : [3^8 + 2 \cdot (-3)^7 + 5 \cdot 3^6] = \\ & = [2^2 \cdot (-3)^3]^2 : [3^2 \cdot 3^6 - 2 \cdot 3^2 \cdot 3^6 + 5 \cdot 3^6] = \\ & = 2^4 \cdot 3^6 : [8 \cdot 3^6] = \\ & = [2^4 \cdot 3^6] : [2^3 \cdot 3^6] = 2 : 1 = 2 \end{aligned}$$

n. 514

$$\begin{aligned} & \{(-2)^2 \cdot (-7)^2 + [(-2)^3]^2 \cdot (-2)^5\} : (-2)^2 = \\ & = \{2^2 \cdot 7^2 + 2^6 \cdot (-2)^5\} : 2^2 = \\ & = \{3^2 - 2^1\} : 4 = \\ & = \{9 - 2\} : 4 = \\ & = -12 : 4 = \\ & = -3 \end{aligned}$$

n. 519

$$\begin{aligned} & (-2)^2 - (-2)(+3) + (-2)^7 \cdot (-2)^4 - [(-2)^8 \cdot (-2)^2] : (-2)^7 = \\ & = 2^2 - (-6) + (-2)^3 - [(-2)^{10}] : (-2)^7 = \\ & = 4 + 6 - 8 - 2^{10} : (-2)^7 = \\ & = 4 + 6 - 8 + 2^3 = \\ & = 4 + 6 - 8 + 8 = \\ & = 10 \end{aligned}$$

n. 520

$$\begin{aligned} & (-2)^3 + (-3)^{10} : (-3)^8 - (-2)^2 + [(-2)^6 \cdot (-2)^4] : (-2)^7 + 3^2 + (-3)^0 = \\ & = -8 + (-3)^2 - 4 + [(-2)^{10}] : (-2)^7 + 9 + 1 = \\ & = -8 + 9 - 4 + 2^{10} : (-2)^7 + 9 + 1 = \\ & = -8 + 9 - 4 - 2^3 + 9 + 1 = \\ & = -8 + 9 - 4 - 8 + 9 + 1 = \\ & = -1 \end{aligned}$$

n. 529

$$\begin{aligned} & |2^2 - 2^3|^4 : (-2)^8 - |2^2 - 2^3|^4 : (-2)^7 = \\ & = |4 - 8|^4 : 2^8 - |4 - 8|^4 : (-2)^7 = \\ & = |4|^4 : 2^8 - (-4)^4 : (-2)^7 = \\ & = 2^8 : 2^8 - 4^4 : (-2)^7 = \\ & = 1 - 2^8 : (-2)^7 = \\ & = 1 + 2 = \\ & = +3 \end{aligned}$$

P. 27
n. 530

$$\begin{aligned} & \left[(1-1-1-1-1-1^3-1-1^2)^2 - 2^{1+1+1-1+1+1-1} \right]^{10} : \left\{ \left[(-5)(+2) + (-7)(-2) \right]^4 \right\}^2 = \\ & = \left[\cancel{1-1-1-1}^2 - 2^{1+1+1} \right]^{10} : \left\{ \left[-10 + 14 \right]^4 \right\}^2 = \\ & = \left[(-2)^2 - 2^3 \right]^{10} : \left\{ \left[4 \right]^4 \right\}^2 = \\ & = \left[4 - 8 \right]^{10} : 4^8 = \\ & = 4^{10} : 4^8 = \\ & = 4^2 = \\ & = 16 \end{aligned}$$

n. 539

$$\begin{aligned} & \left\{ \left[(-2) \cdot 2 \right] : (-9) \right\}^{10} \cdot \left[(-2)^3 + (-2)^2 \right]^2 = \\ & = \left\{ \left[-2 \cdot 2 \right] : (-9) \right\}^{10} \cdot \left[-8 + 4 \right]^2 = \\ & = \left\{ (-4) : (-9) \right\}^{10} \cdot \left[-4 \right]^2 = \\ & = 1 \cdot 16 = \\ & = 16 \end{aligned}$$

n. 549

$$\text{MCD}(15, 25) = 5$$

$$\text{mcm}(5, 10) = 10$$

$$15 = 3 \cdot \underline{5}$$

$$5 = \underline{5}$$

$$25 = 5^2$$

$$10 = \underline{2} \cdot \underline{5}$$

$$\text{MCD}(66, 33) = 11$$

$$\text{mcm}(11, 2) = 22$$

$$66 = 2^2 \cdot \underline{11}$$

$$11 = \underline{11}$$

$$33 = 3 \cdot 11$$

$$2 = \underline{2}$$

$$\text{MCD}(10, 30) = 10$$

$$\text{mcm}(2, 5) = 10$$

$$10 = \underline{2} \cdot \underline{5}$$

$$2 = \underline{2}$$

$$30 = 2 \cdot 3 \cdot 5$$

$$5 = \underline{5}$$

n. 569

$$\begin{aligned} & |2 - (-2)^3| - [-2 - (+3) \cdot (-9)]^2 = \\ & = |2 + 8| - [-2 + 12]^2 = \\ & = 10 - [10]^2 = \\ & = 10 - 100 = \\ & = -90 \end{aligned}$$

n. 598

$$x + \{-2 - [-(-2)^3]\} = \{13 + 3(-2)^3\}^2$$

$$x + \{-2 - [-(-8)]\} = \{13 + 3 \cdot (-8)\}^2$$

$$x + \{-2 - [+8]\} = \{13 + (-24)\}^2$$

$$x + \{-2 - 8\} = \{13 - 24\}^2$$

$$x + (-10) = 121$$

$$x + (-10) = 121$$

$$x - 10 = 121$$

$$x = 131$$

P. 09 n. 575

$$\begin{aligned} & [(8^6 : 2^{15}) \cdot 16]^2 : 4^5 = \\ & = [(2^8 : 2^{15}) \cdot 2^4]^2 : 2^{10} = \\ & = [2^3 \cdot 2^4]^2 : 2^{10} = \\ & = 2^6 : 2^{10} = \\ & = 2^{-4} = \\ & = \frac{1}{16} \end{aligned}$$

n. 577

$$\begin{aligned} & \{2^4 : (2^6)^2 - [(-2)^5 \cdot (-2)^9] : (-2)^7\} : [(-9)(-11)] = \\ & = \{2^2 - [(-2)^{14}] : (-2)^7\} : 99 = \\ & = \{2^2 - (-2)^7\} : 99 = \\ & = \{1 \cdot 2^2 + 2^8 \cdot 2^2\} : 99 = \\ & = \{33 \cdot 4\} : 99 = \\ & = 132 : 99 = \\ & = \frac{4}{3} \end{aligned}$$

n. 579

$$\begin{aligned} & [(90 \cdot 99)^2 \cdot 35 \cdot 18] : (280 \cdot 21)^2 = \\ & = [(19601)^2 \cdot 630] : (58801)^2 = \\ & = \frac{(19601)^2 \cdot 630}{(58801)^2} = \\ & = 630 : (3)^2 = \\ & = 630 : 9 = \\ & = 70 \end{aligned}$$

n. 581

$$\begin{aligned} & [(2^8 : 2^6)^8 : 2^{16}]^3 : 2^4 + \{(3^8 : 3^4) \cdot 3^5\}^2 : (3^9)^4 = \\ & = [2^{16} : 2^{14}]^3 : 2^4 + \{3^4 \cdot 3^5\}^2 : 3^{16} = \\ & = 2^6 : 2^4 + \{3^9\}^2 : 3^{16} = \\ & = 2^2 + 3^{18} : 3^{16} = \\ & = 2^2 + 3^2 = \\ & = 4 + 9 = \\ & = 13 \end{aligned}$$

n. 583

$$\begin{aligned} & \{[5^6 : 5^4 - 20]^{10}\}^3 : 5^{28} - 20^7 : [(19 + 19^0)^2]^3 = \\ & = \{[5^2 - 20]^{10}\}^3 : 5^{28} - 20^7 : [20^6] = \\ & = \{5^{30}\} : 5^{28} - 20 = \\ & = 5^2 - 20 = \\ & = 5 \end{aligned}$$

n. 585

$$\begin{aligned} & \{[(9^9)^3 : (2^5)^2] \cdot 8^2\} : 2^5 + (3^6 \cdot 2^4)^2 : 6^7 + [(12^2 - 11^2)^3 \cdot 23^9] : 23^7 = \\ & = \{[2^{12} : 2^{10}] \cdot 2^6\} : 2^5 + (6^9)^2 : 6^7 + [(100 - 121)^3 \cdot 23^9] : 23^7 = \\ & = \{2^2 \cdot 2^6\} : 2^5 + 6^8 : 6^7 + [23^3 \cdot 23^9] : 23^7 = \\ & = 2^8 : 2^5 + 6 + 23^0 = \\ & = 2^3 + 6 + 1 = \\ & = 8 + 6 + 1 = \\ & = 15 \end{aligned}$$