Eseguire le seguenti somme algebriche di monomi

25. $ax^2 - a^2x - 3ax^2 + \frac{8}{3}ax^2 + \frac{7}{12}a^2x - 5 + \frac{1}{6}a^2x$. $\left[\frac{2}{3}ax^2 - \frac{1}{4}a^2x - 5\right]$

26. $\frac{1}{2}a^2x - \frac{4}{5}b^3 + 3a^2x^2 - \frac{5}{6}a^2x + 0{,}8b^3 - a^2x^2$. $\left[2a^2x^2 - \frac{a^2x}{3}\right]$

27. $\frac{1}{4}ab^n c^p + \frac{1}{3}ab^n c^p + \frac{7}{3}ab^n c^p$. $\left[\frac{35}{12}ab^n c^p\right]$

28. $-a^k b^3 y + \frac{1}{2}a^k b^3 y + \frac{1}{3}a^k b^3 y$. $\left[-\frac{1}{6}a^k b^3 y\right]$

29. $a^m b^{2p} c^7 + x^k y^{2m} - \frac{3}{2}a^m b^{2p} c^7 + x^k y^{2m} - \frac{1}{8}x^k y^{2m} + a^m b^{2p} c^7$. $\left[\frac{1}{2}a^m b^{2p} c^7 + \frac{15}{8}x^k y^{2m}\right]$

30. $-3a^2 - (-2ab) - (+5b^2) + (-3b^2) + (+2a^2) - (+3ab) - (-9b^2)$. $[-a^2 - ab + b^2]$

31. $3xz^2 - \left(-\frac{1}{2}x^3\right) + (-2xz^2) - \left(+\frac{1}{3}xz^2\right) - (+3x^3) + (-x^3)$. $\left[\frac{2}{3}xz^2 - \frac{7}{2}x^3\right]$

32. $ab^2 - (-3ab^2) + (+5ab^2) - (+2ab^2) + (-7ab^2) - (-4a^2b) + (-a^2b)$. $[3a^2b]$

33. $4mn^2 - (-5ab^3) + \left(-\frac{3}{4}\right) + (-9ab^3) - \left(-\frac{1}{2}\right) + (-3mn^2) + (-mn^2)$. $\left[-4ab^3 - \frac{1}{4}\right]$

34. $-\frac{2}{5}x^2 - (-3xy) + (+4x^2) - (-2y^2) + (-2xy) - \left(+\frac{18}{5}x^2\right) - (+xy)$. $[2y^2]$

35. $\frac{1}{2}abx - \left(-\frac{1}{3}abx\right) + \left(+\frac{7}{5}\right) - \left(+\frac{2}{3}abx\right) - (+abx)$. $\left[\frac{7}{5} - \frac{5}{6}abx\right]$

36. $3x + (-2by) + \left(-\frac{1}{2}x\right) + \left(+\frac{1}{3}by\right) - (-2x) + (-x)$. $\left[\frac{7}{2}x - \frac{5}{3}by\right]$

37. $2t^2 + \left(-\frac{1}{3}\right) - (-2bc) + (-t^2) + (+2) - \left(\frac{4}{3}bc\right) - (+t^2) + \left(-\frac{1}{2}\right)$. $\left[\frac{2}{3}bc + \frac{7}{6}\right]$

38. $4a - [-(-3b) + (-5a) - (-c)] - [-3a - (-b) - (+2c)] - [-(-2a)]$. $[10a - 4b + c]$

39. $2a - \{b - [a - b - (-2a) - (-3b)] - [-(-2a)]\}$. $[7a + b]$

40. $-\{-(-5) - 2x - [-(-1) - 3 - (-2x) - (-7x)] - [-(-10)]\} - (-16)$. $[11x + 19]$

41. $-\left[-\left(-\frac{1}{2}ab\right)\right] - (-4a^2) - \frac{1}{3}b^2 - \left\{-\left[-\left(-\frac{1}{3}ab\right) - \frac{1}{2}b^2 - \left(-\frac{1}{6}ab\right) + \left(-\frac{1}{6}b^2\right)\right]\right\}$. $[4a^2 - b^2]$

42. $-\frac{3}{5}ax^5-\left[\left(-\frac{2}{3}y^3z\right)+\left(+\frac{1}{2}ax^5\right)\right]+\left(-\frac{5}{3}y^3z\right)-(-zy^3)-\left(-\frac{11}{10}ax^5\right)$. [0]

43. $-\frac{8}{5}a^3b^2-\left[\left(+\frac{3}{4}a^2b^3\right)+(1,\bar{1}a^2b^3)\right]+\frac{3}{4}a^2b^3-\left(-\frac{16}{15}a^3b^2\right)$. $\left[-\frac{10}{9}a^2b^3-\frac{8}{15}a^3b^2\right]$

44. $\frac{4}{5}bc^3-\left[(-7x^4y^2)-\left(-\frac{1}{2}a^5\right)+(+x^4y^2)\right]+6a^5-\frac{5}{6}a^5+0,\bar{6}bc^3$. $\left[6x^4y^2+\frac{14}{3}a^5+\frac{22}{15}bc^3\right]$

45. $a^nby^2+\left(-\frac{1}{2}x^my^p\right)-\left(-\frac{1}{3}a^nby^2\right)-\left(-\frac{1}{2}x^my^p\right)$. $\left[\frac{4}{3}a^nby^2\right]$

46. $2xy^nt^q-\left(+\frac{1}{2}xy^nt^q\right)-(+x^m)-\left(+\frac{5}{4}xy^nt^q\right)+\left(+\frac{1}{2}x^m\right)-\left(+\frac{1}{4}xy^nt^q\right)$. $\left[-\frac{1}{2}x^m\right]$

47. $\frac{3}{2}a^{mn}b^p+\left(+\frac{1}{3}xy^3z^k\right)+(-a^{mn}b^p)-\left(-\frac{8}{3}xy^3z^k\right)-\left(+\frac{1}{2}a^{mn}b^p\right)$. $[3xy^3z^k]$

B) Moltiplicazione di monomi.

Trovare il prodotto dei seguenti monomi:

48. $2a^3b(-3ab^2)$; $\frac{1}{3}a^2b^2(-3a^4bc^6)$; $\left(-\frac{3}{5}xy^2\right)\left(\frac{25}{6}z^2\right)$; $(a^3b^2y)(-a^3b^2y)$; $\frac{3}{4}mx(-6mn^2)$.

49. $1,3a^5bx^2\left(-\frac{5}{13}b^3x\right)\left(\frac{4}{3}bc\right)$; $(-a^2b^5c)\left(\frac{2}{3}a^3c^2\right)\left(\frac{1}{4}b\right)$; $(-5ab^2x)\left(-\frac{7}{5}a^3b\right)\frac{1}{7}abx^2$.

50. $3y(-2a^3by^2)\left(-\frac{1}{3}ab^2y^2\right)\frac{3}{2}ab^2y$; $\frac{1}{3}a\left(-\frac{9}{2}bcx\right)\left(-\frac{1}{6}b^2x\right)(-4ax^2)$.

51. $-xy\cdot 2x^4y(-8x)(-5x^2)$; $-2a^3(-4a^4)(-8a^2b)(-2a^3b)$. $[-80x^8y^2;\ 128a^{12}b^2]$

52. $\frac{1}{4}x^{3n}\cdot\left(-\frac{8}{3}x^n\right)$; $(3a^2b^{m-1})\cdot(2a^mb^3)$. $\left[-\frac{2}{3}x^{4n};\ 6a^{m+2}\cdot b^{m+2}\right]$

53. $2a^4x^{m+p}y\cdot\left(-\frac{1}{2}a^{5+p}x^{m-2}\right)$; $a^{x+6y}\cdot a^{3x+2y-5}\cdot a^{2x-3y+5}$. $[-a^{9+p}x^{2m+p-2}y;\ \ldots]$

54. $(-4x^ry^{s-1})(-2x^ry^{s+1})$; $\frac{3}{5}x^{2p}y^n\left(-\frac{4}{3}x^{3p}y^{2n}\right)$. $\left[8x^{2r}y^{2s};\ -\frac{4}{5}x^{5p}y^{3n}\right]$

55. $ax^{n-3}y^{5-m}(-a^mx^{3n+2}y^{m-3})\left(-\frac{3}{5}a^{m-1}x^{4-n}y^2\right)$. $\left[\frac{2}{5}a^{2m}x^{3n+3}y^4\right]$

Eseguire i seguenti prodotti di monomi e ridurre i termini simili:

59. $x^2 - 2x(-2x) - 2x(+3a^2y) - x(-15x) + 2a^2(+3xy)$. $[20x^2]$

60. $2ab^4(-2ab^2) + a^2b \cdot 3a^3b^2 + 3ab^3 \cdot (-2ab^3) - a^4b(-2ab^2) + 10a^2b^6$. $[5a^5b^3]$

61. $11a(a^2b) - 20(-a^2)(-ab) - 8ab\left(-\frac{3}{2}ab\right) + 16ab^3 - 8a(-a^2b) + \frac{4}{3}b(-12ab^2) - 12a^2b^2$. $[-a^3b]$

62. $-\frac{5}{4}a^3b^6 - \frac{2}{3}a^3b(-a^3b^2) + \frac{3}{8}ab^3(-2a^2b^3) - \frac{1}{2}a^2b^2\left(-\frac{2}{3}a^4b\right)$. $[a^6b^3 - 2a^3b^6]$

63 $-2x^3 - 9x^2 - 9(+5x)(-x^2) + 9x^2(-3x) - 4x(-5x) + 5x(-3x^2) - 10x^2$. $[x^3 + x^2]$

64. $a^2(-2x) - (-2x)(-a^2) - ax(-3a) + a(-ax) + (-2a)(-ax) + 3ax(-2x)\left(-\frac{5}{4}x\right) \cdot \frac{2}{15}a^2x^2$. $[a^3x^5]$

65. $-2m^2n(3mn^4) + \frac{1}{3}x^2y^3\left(-\frac{1}{3}xy\right) + 2x^3\left(-\frac{1}{2}y^4\right) + mn^3(-2m^2n^2)$. $\left[-8m^3n^5 - \frac{10}{9}x^3y^4\right]$

66. $\frac{3}{2}a^2b(-2ac^3)\left(\frac{1}{3}b^5c\right) + 2ab^3(-3a^2bc^3)(-b^2c) - 5a^3b^6c^4$. $[0]$

67. $\frac{3}{5}n^5k^3 - \frac{3}{2}n^4k\left(-\frac{4}{3}nk^2\right) + 2x^3y^8 - \frac{13}{5}n^4(nk^3) - x^2y^6(xy^2)$. $[x^3y^8]$

68. $-\frac{2}{3}p(p^2x)\left(-\frac{1}{4}x^4\right) + p^3x^5 + \frac{2}{3}p^2x^3(-px^2) - p^2(px^4)\left(-\frac{1}{2}x\right)$. $[p^3x^5]$

69. $\frac{3}{7}a^5bc \cdot \left(-\frac{7}{2}ab^3c\right) + \frac{5}{3}a^3b^2c \cdot \left(-\frac{1}{2}a^3b^2c\right) - \frac{3}{2}a^3b^2c\left(-\frac{2}{9}a^3b^2c\right)$. $[-2a^6b^4c^2]$

70. $2a^2 + 3b\left(-\frac{1}{3}c^2\right) + bc\left(-\frac{1}{4}c\right) + 2a(-a) + \frac{7}{4}c^2(+b) - \frac{1}{2}bc^2$. $[0]$

71. $-\frac{1}{3}x^4y(-xy^3) + 2x^2\left(-\frac{5}{3}x^3y^4\right) - \frac{1}{3}x(2xy^3)(-3x^3y) - (-x^5y^4)$. $[0]$

72. $-\frac{1}{2}x^5y^7 + \frac{1}{4}x^2y^4(x^3y^2)(-y) + \frac{3}{4}x^3y^4(x^2y^3)$. $[0]$

Eseguire le potenze dei monomi, i prodotti dei monomi e ridurre, quando è possibile, i termini simili:

93. $(-ab^2c)^2 + \frac{1}{4}ab^3c^2(ab)$; $(-2ax^2)^3 \cdot (-3a^2x) - 2ax(-3a^2x^3)^2$. $\left[\frac{5}{4}a^2b^4c^2;\ 6a^5x^7\right]$

94. $(-a^5x^2)(-3a)^3 + (2a^2)^3(-ax)^2 - (-6a^4x)^2$. $[-a^8x^2]$

95. $\frac{1}{5}abm\left(\frac{1}{3}ab^3\right)^3 + \frac{2}{3}b^2m\left(\frac{1}{2}a^2b^4\right)^2 + \frac{1}{2}b^2m(ab^2)^4$. $\left[\frac{91}{135}a^4b^{10}m\right]$

96. $\frac{1}{3}b(a^3b)^2 + \left(\frac{2}{3}xy^2\right)^3(a^2m)^3 + \frac{2}{5}a^3\left(\frac{1}{3}ab\right)^3 + \frac{1}{3}am^3x^3y(ay)^5$. $\left[\frac{47}{135}a^6b^3 + \frac{17}{27}a^6m^3x^3y^6\right]$

97. $(-a^3b^5c^7)^3 - \frac{8}{3}ab^3c\left(\frac{1}{2}a^2b^3c^5\right)^4 + \frac{1}{2}a^3bc^6\left(\frac{1}{3}a^3bc^4\right)^5$. $\left[-\frac{7}{6}a^9b^{15}c^{21} + \frac{1}{486}a^{18}b^6c^{26}\right]$

98. $-(-3a)(4ax^3)^2 - [(ax)^2(-x^2)^2 \cdot a - (-5ax^2)^3] + a(-9ax^3)^2$. $[3a^3x^6]$

99. $\frac{1}{2}(a^2)^3 + (-3a^3)^2 - [-(-2a^2)^3(-24x^3y^2)^0 + (-a^3)^2]$. $\left[\frac{1}{2}a^6\right]$

100. $(a^2)^5 + \left(-\frac{1}{2}xy^2\right)^3 - \frac{2}{3}b^6 + 3(a^3)^3(-a) + \frac{1}{8}x^3(y^3)^2 - \frac{1}{3}(b^3)^2$. $[-2a^{10} - b^6]$

101. $(-x^3)^3 + 2(x^2)^2 \cdot x^3(-x^2) + 5a^2b(-b^3) + (3ab^2)^2 + 3x^9$. $[4a^2b^4]$

102. $-3[(ax)^3]^2 - (-a)^3(-ax^2)^3 + [-(-2ax)^2]^3 - \{-[-(-2ax)^2]^1\}^3 - \{-[-(-2ax)^1]^2\}^3 -$
$-\{-[-(-2ax)^3]^2\}^1$. $[-4a^6x^6]$

103. $(3x^n)^2 - 2a^pb^3 + 4(x^n)(-x^n) + a^pb^3$. $[5x^{2n} - a^pb^3]$

104. $(y^{mn})^3 - 2a^3b^m + 2(y^m)^n(y^{mn})^2 + a^3b^{m-6}(-b^3)^2$. $[3y^{3mn} - a^3b^m]$

E) Esercizi di riepilogo.

Eseguire le operazioni indicate e ridurre i termini simili:

115. $\left(-\frac{1}{2}x^2y\right):(2xy)+\frac{1}{4}x;\quad \left(-\frac{1}{2}xy^3z^2\right):\left(\frac{3}{2}xy\right)+2ay^5z^3:(-ay^3z)$. $\left[0;\ -\frac{7}{3}y^2z^2\right]$

116. $(4a^2+2a^2)^2:(-3a)^2-(2a^3b-8a^3b):(-3ab)$. $[2a^2]$

117. $-2a^4:\left(\frac{2}{3}a\right)^3+\frac{4}{3}a^3b^2:\left(-\frac{1}{3}ab\right)^2+(-2ab)^2:(ab^2)$. $\left[\frac{37}{4}a\right]$

118. $\left[\left(-\frac{9}{11}x^2y\right)^3\cdot\left(-\frac{11}{9}xy^2\right)^3-(-x^3y^3)^3\right]:(-x^2y^2)^3+2x^3y^3$. $[0]$

119. $-\frac{3}{4}a^3:\frac{1}{2}(-2a)a^2+\left(-\frac{1}{2}a^3\right)^3:\left[\frac{2}{3}a(-a^3)^2\right]-\left(-\frac{3}{4}a\right)^2$. $\left[\frac{3}{4}-\frac{3}{4}a^2\right]$

120. $\left(-\frac{5}{7}x^9y^{11}z^2\right):\left(\frac{5}{14}xy^{10}\right)\cdot\left(\frac{1}{2}xy\right)-\frac{1}{3}x^3y(-x^6yz^2)$. $\left[-\frac{2}{3}x^9y^2z^2\right]$

121. $-2xy\left(-\frac{1}{3}x^2y\right)^2:(-6x^3y)-\{-[-x^2(-y)^2]^2\}^2:\left(-\frac{3}{2}x^2y^2\right)^3-\frac{1}{3}x^2y^2$. $[0]$

122. $[(0{,}1x^3y^6)^2(-t^5):(xt)^5](-10xy)^2+2abx(xy^7)^2:(-2ab)$. $[-2x^3y^{14}]$

123. $\frac{1}{2}ab^2+(3xy^2)^4(ab^2)^3:[(xy)^3(-2xy^5)(ab^2)^2]$. $[-40ab^2]$

124. $[(2xy^3)^2:3xy]:\left[\frac{1}{2}xy^3(axy)-0{,}5a(-xy^2)^2\right]^3$. *[Impossibile]*

125. $\left(-\frac{1}{2}ax^3y^7:\frac{7}{4}axy^2\right)^2\left(-\frac{7}{2}ab\right)+5(abx^2)^3:(abx)^2\left(-\frac{1}{7}y^{10}\right)$. $[-abx^4y^{10}]$

126. $\left\{\left[\left(\frac{3}{2}x^7y^3z\right)^2\right]^0\right\}^4+\frac{1}{3}ab^3x^4y(-3xy)^2-4abx^2y(bx^2y)^2-1$. $[-ab^3x^6y^3]$

127. $\left(am^3r^6\cdot\frac{1}{3}ms\right):\left(\frac{2}{3}m^2r^2\right)^2+\frac{1}{2}r^6s^9:(-2r^3s^4)^2\cdot 2ar^2$. $[ar^2s]$

128. $\left[-m^3n^3-2m^2n(-mn^2)+\frac{1}{4}x^6y^2-(mn)^3-\left(-\frac{1}{2}x^3y\right)^2\right]^0+2x^3y$. *[Impossibile]*

129. $xy^3:[2ax^6y:a(x^2)^3]-\frac{1}{2}xy^2+a-a\{[(x^3y^7)^3]^2:x^{18}y^{42}\}$. $[0]$