

Scheda di Allenamento: I Monomi

Espressioni con i monomi

1. Somme algebriche ed espressioni lineari

Parte Base 1. Calcola le seguenti somme algebriche di monomi:

1. ■□□ $\frac{1}{2}x^2y - \frac{1}{3}x^2y + \frac{5}{6}x^2y - x^2y$ [0]
2. ■□□ $\frac{3}{4}a^3 - \frac{1}{2}a^3 + \frac{5}{8}a^3 - \frac{1}{8}a^3$ [$\frac{3}{4}a^3$]
3. ■□□ $-\frac{2}{5}ab^2 + \frac{3}{10}ab^2 - \frac{1}{2}ab^2 + ab^2$ [$\frac{2}{5}ab^2$]
4. ■□□ $\frac{7}{3}xy^3 - \frac{5}{6}xy^3 + \frac{1}{2}xy^3 - 2xy^3$ [0]
5. ■□□ $0, 2x^2z - 1, 5x^2z + 2, 3x^2z - 0, 8x^2z$ [$\frac{1}{5}x^2z$]
6. ■□□ $(\frac{1}{3}a^2b + \frac{1}{4}a^2b) - (\frac{5}{12}a^2b - \frac{1}{6}a^2b)$ [$\frac{1}{3}a^2b$]
7. ■□□ $(-\frac{3}{5}xy + \frac{1}{10}xy) - (-\frac{7}{10}xy + \frac{1}{2}xy)$ [$-\frac{3}{10}xy$]
8. ■□□ $(\frac{5}{8}a^3b^2 - \frac{1}{4}a^3b^2) + (-\frac{1}{2}a^3b^2 - \frac{1}{8}a^3b^2)$ [$-\frac{1}{4}a^3b^2$]
9. ■□□ $(\frac{2}{7}m^2n - \frac{1}{14}m^2n) - (\frac{3}{14}m^2n - \frac{1}{7}m^2n)$ [$\frac{1}{7}m^2n$]
10. ■□□ $(\frac{4}{9}x^4 - \frac{1}{3}x^4) - (-\frac{5}{9}x^4 + \frac{2}{3}x^4)$ [0]
11. ■■□ $(\frac{3}{4}y^3 - \frac{5}{8}y^3 + \frac{1}{2}y^3) - (\frac{7}{8}y^3 - \frac{1}{4}y^3)$ [0]
12. ■■□ $(-\frac{2}{3}a^2b^2 + \frac{1}{6}a^2b^2) - (\frac{5}{6}a^2b^2 - \frac{1}{3}a^2b^2 + a^2b^2)$ [$-2a^2b^2$]
13. ■■□ $(\frac{1}{5}x^3z + \frac{3}{10}x^3z - \frac{1}{2}x^3z) + (\frac{4}{5}x^3z - \frac{7}{10}x^3z)$ [$\frac{1}{10}x^3z$]
14. ■■□ $(-\frac{5}{12}a^4 + \frac{1}{4}a^4) - (\frac{1}{6}a^4 - \frac{2}{3}a^4 + \frac{5}{12}a^4)$ [$-\frac{1}{12}a^4$]
15. ■■□ $(\frac{7}{8}x^2y^3 - \frac{3}{4}x^2y^3) + (\frac{1}{2}x^2y^3 - \frac{5}{8}x^2y^3 - \frac{1}{4}x^2y^3)$ [$-\frac{1}{4}x^2y^3$]
16. ■■□ $(-\frac{3}{10}ab^3 + \frac{2}{5}ab^3 - \frac{1}{2}ab^3) - (-\frac{7}{10}ab^3 + \frac{4}{5}ab^3)$ [$-\frac{1}{2}ab^3$]
17. ■■□ $(\frac{5}{6}m^3n^2 - \frac{1}{3}m^3n^2 + \frac{1}{2}m^3n^2) - (\frac{7}{6}m^3n^2 - \frac{2}{3}m^3n^2)$ [$\frac{1}{2}m^3n^2$]
18. ■■□ $(-\frac{4}{9}x^5 + \frac{2}{3}x^5) - (\frac{1}{9}x^5 - \frac{1}{3}x^5) + (\frac{5}{9}x^5 - x^5)$ [0]
19. ■■□ $(\frac{3}{5}a^2b^2 - \frac{1}{10}a^2b^2 + \frac{1}{2}a^2b^2) - (\frac{7}{10}a^2b^2 - \frac{4}{5}a^2b^2)$ [$\frac{11}{10}a^2b^2$]
20. ■■□ $(-\frac{1}{4}x^2y + \frac{5}{12}x^2y - \frac{1}{3}x^2y) - (\frac{7}{12}x^2y - \frac{3}{4}x^2y - x^2y)$ [x^2y]
21. ■■■ $(\frac{2}{7}a^3 - \frac{5}{14}a^3 + \frac{1}{2}a^3) + (-\frac{3}{14}a^3 + \frac{1}{7}a^3) - (\frac{5}{14}a^3 - a^3)$ [a^3]
22. ■■■ $(-\frac{3}{8}x^4y^2 + \frac{1}{4}x^4y^2) - (\frac{5}{8}x^4y^2 - \frac{1}{2}x^4y^2) + (\frac{7}{8}x^4y^2 - x^4y^2)$ [$-\frac{3}{8}x^4y^2$]

23. ■■■■ $(\frac{8}{9}m^2n^3 - \frac{2}{3}m^2n^3) - (-\frac{4}{9}m^2n^3 + \frac{1}{3}m^2n^3) - (\frac{5}{9}m^2n^3 - \frac{1}{9}m^2n^3)$ $[-\frac{1}{9}m^2n^3]$
24. ■■■■ $(-\frac{7}{10}a^5b + \frac{3}{5}a^5b - \frac{1}{2}a^5b) - (\frac{9}{10}a^5b - \frac{4}{5}a^5b + \frac{1}{10}a^5b)$ $[-\frac{4}{5}a^5b]$
25. ■■■■ $(\frac{5}{12}x^3y^3 - \frac{1}{6}x^3y^3 + \frac{1}{4}x^3y^3) - (\frac{7}{12}x^3y^3 - \frac{2}{3}x^3y^3) + (\frac{1}{12}x^3y^3 - \frac{1}{2}x^3y^3)$ $[\frac{1}{6}x^3y^3]$
26. ■■■■ $(-\frac{3}{5}ab^4 + \frac{7}{10}ab^4) - (\frac{9}{10}ab^4 - \frac{1}{2}ab^4) - (-\frac{11}{10}ab^4 + \frac{4}{5}ab^4)$ $[0]$
27. ■■■■ $(\frac{3}{8}x^2y^4 - \frac{5}{16}x^2y^4 + \frac{1}{4}x^2y^4) - (\frac{7}{16}x^2y^4 - \frac{1}{2}x^2y^4) - (\frac{9}{16}x^2y^4 - \frac{3}{8}x^2y^4)$ $[\frac{3}{16}x^2y^4]$
28. ■■■■ $(-\frac{5}{14}a^3b^3 + \frac{2}{7}a^3b^3) + (\frac{9}{14}a^3b^3 - \frac{1}{2}a^3b^3) - (\frac{3}{14}a^3b^3 - \frac{4}{7}a^3b^3)$ $[\frac{3}{7}a^3b^3]$
29. ■■■■ $(\frac{11}{15}m^4n - \frac{2}{5}m^4n - \frac{1}{3}m^4n) - (-\frac{7}{15}m^4n + \frac{4}{5}m^4n) + (\frac{8}{15}m^4n - \frac{1}{5}m^4n)$ $[0]$
30. ■■■■ $(-\frac{7}{18}x^5y^2 + \frac{5}{9}x^5y^2 - \frac{1}{6}x^5y^2) - (\frac{11}{18}x^5y^2 - \frac{2}{3}x^5y^2) - (-\frac{13}{18}x^5y^2 + \frac{1}{2}x^5y^2)$ $[\frac{5}{18}x^5y^2]$

Parte Avanzata 1. Semplifica le seguenti espressioni algebriche (addizioni e sottrazioni):

31. ■□□ $3x^2y - 5x^2y + 8x^2y - 2x^2y$ $[4x^2y]$
32. ■□□ $\frac{3}{5}a^3 - (-\frac{1}{5}a^3) + \frac{2}{5}a^3$ $[\frac{6}{5}a^3]$
33. ■■□ $\frac{1}{2}ab - (\frac{1}{3}ab - ab) - \frac{5}{6}ab$ $[\frac{1}{3}ab]$
34. ■■□ $2x^2 - [-x^2 + (3x^2 - 5x^2)] + 4x^2$ $[9x^2]$
35. ■■□ $0, 2xy^2 - \frac{1}{5}xy^2 + 1, 5xy^2 - (-\frac{1}{2}xy^2)$ $[2xy^2]$
36. ■■■ $[-(-2a + 3a) - 5a] - [2a - (-a + a)] + 4a$ $[-4a]$
37. ■■■ $\frac{3}{4}x^3 - [\frac{1}{2}x^3 - (x^3 - \frac{1}{4}x^3)] - (-\frac{5}{2}x^3)$ $[\frac{7}{2}x^3]$
38. ■■■ $0, \bar{3}ab - [1, \bar{6}ab - (\frac{1}{3}ab - 2ab)] + \frac{5}{3}ab$ $[-\frac{4}{3}ab]$
39. ■■□ $\frac{1}{4}y^{2n} - (-\frac{3}{4}y^{2n} + \frac{1}{2}y^{2n}) - y^{2n}$ $[-\frac{1}{2}y^{2n}]$
40. ■■■ $a^{n-1} - [\frac{1}{3}a^{n-1} - (\frac{2}{3}a^{n-1} - a^{n-1})] - (-\frac{1}{3}a^{n-1})$ $[\frac{2}{3}a^{n-1}]$
41. ■□□ $5x^3 - 2x^3 + 7x^3 - 11x^3$ $[-x^3]$
42. ■□□ $\frac{3}{2}a^2b - \frac{1}{2}a^2b + 2a^2b$ $[3a^2b]$
43. ■■□ $[-(-4xy^2 + xy^2)] - (3xy^2 - 5xy^2) + xy^2$ $[6xy^2]$
44. ■■□ $1, 5a^4 - (\frac{1}{2}a^4 - a^4) - (-0, 5a^4)$ $[\frac{5}{2}a^4]$
45. ■■□ $\frac{5}{3}x^2 - [x^2 - (\frac{1}{3}x^2 - 2x^2)] + x^2$ $[0]$
46. ■■■ $2ab^3 - [-3ab^3 - (ab^3 - 4ab^3)] - [5ab^3 - (-ab^3 + 2ab^3)]$ $[-2ab^3]$
47. ■■■ $\frac{1}{6}x^3y - [\frac{1}{2}x^3y - (-\frac{1}{3}x^3y + x^3y)] - (-\frac{5}{6}x^3y)$ $[\frac{7}{6}x^3y]$
48. ■■■ $0, \bar{6}x^2 - [\frac{4}{3}x^2 - (1, \bar{3}x^2 - 2x^2)] + (-\frac{1}{3}x^2)$ $[-\frac{5}{3}x^2]$
49. ■■□ $\frac{4}{5}a^{3n} - (\frac{1}{5}a^{3n} - a^{3n}) - (-\frac{2}{5}a^{3n})$ $[2a^{3n}]$

50. ■■■ $-2x^{n+2} - \left[\frac{1}{2}x^{n+2} - \left(\frac{3}{2}x^{n+2} - 3x^{n+2}\right)\right] + x^{n+2}$ $[-3x^{n+2}]$
51. ■□□ $2a^2b - (-3a^2b) + 4a^2b - 5a^2b$ $[4a^2b]$
52. ■□□ $\frac{1}{2}xy - \left(-\frac{3}{2}xy\right) - xy$ $[xy]$
53. ■■□ $[-(-2x^2 + x^2) + 3x^2] - (5x^2 - 2x^2)$ $[x^2]$
54. ■■□ $0, 5a^3 - \left(-\frac{3}{2}a^3\right) - (2a^3 - 0, 2a^3) + \frac{1}{5}a^3$ $\left[\frac{2}{5}a^3\right]$
55. ■■□ $\frac{3}{4}x^2y - \left[\frac{1}{2}x^2y - \left(-\frac{1}{4}x^2y + x^2y\right)\right] - \frac{3}{2}x^2y$ $\left[-\frac{1}{2}x^2y\right]$
56. ■■■ $2xy - [3x - (2x - xy)] - [-x - (-3xy + 2xy)]$ $[0]$
57. ■■■ $-\frac{1}{5}ab^2 - \left(-\frac{3}{2}ab^2\right) - \left(-\frac{3}{10}ab^2 + \frac{1}{2}ab^2\right) + \frac{2}{5}ab^2$ $\left[\frac{3}{2}ab^2\right]$
58. ■■■ $-1, \bar{6}x - \left(-\frac{1}{3}x\right) - [2x - \left(\frac{1}{2}x - x\right)] + 3x$ $\left[-\frac{5}{6}x\right]$
59. ■■□ $\frac{2}{3}x^n - \left[\frac{1}{6}x^n - \left(\frac{1}{2}x^n - x^n\right)\right] - \frac{1}{3}x^n$ $\left[-\frac{1}{3}x^n\right]$
60. ■■■ $-\frac{3}{2}x^{n+1} - \left(-\frac{1}{4}x^{n+1} + x^{n+1}\right) + \left(\frac{3}{8}x^{n+1} - \frac{1}{2}x^{n+1}\right) + 2x^{n+1}$ $\left[-\frac{3}{8}x^{n+1}\right]$

2. Moltiplicazione di monomi

Parte Base 2. Esegui le seguenti moltiplicazioni tra monomi:

61. ■□□ $(+3x^2y)(-4xy^3)$ $[-12x^3y^4]$
62. ■□□ $(-5a^3b)(+2a^2b^2)$ $[-10a^5b^3]$
63. ■□□ $(-7mn^2)(-3m^2n^3)$ $[+21m^3n^5]$
64. ■□□ $(+2xy)(-8x^3y^2z)$ $[-16x^4y^3z]$
65. ■□□ $(-4a^2c)(+5ab^2c^2)$ $[-20a^3b^2c^3]$
66. ■□□ $(-6x^4y)(-2y^3z^2)$ $[+12x^4y^4z^2]$
67. ■□□ $(+8ab)(-3a^2b^3c)$ $[-24a^3b^4c]$
68. ■□□ $(-x^2y^2)(-9xy^4)$ $[+9x^3y^6]$
69. ■□□ $(+10a^3)(-5a^2b^2)$ $[-50a^5b^2]$
70. ■□□ $(-3p^2q)(+7pq^3)$ $[-21p^3q^4]$
71. ■□□ $(+2x)(-3xy)(+4y^2)$ $[-24x^2y^3]$
72. ■□□ $(-a^2b)(+5ab)(-2b^2)$ $[+10a^3b^4]$
73. ■□□ $(+3mn)(-2m^2)(-4n^2)$ $[+24m^3n^3]$
74. ■□□ $(-2x^2y)(+3xy^2)(-xy)$ $[+6x^4y^4]$

75. ■□□ $(+4a^2)(+2ab)(-3bc)$ $[-24a^3b^2c]$
76. ■■□ $(-\frac{2}{3}xy^2)(+\frac{3}{4}x^2y)$ $[-\frac{1}{2}x^3y^3]$
77. ■■□ $(+\frac{5}{8}a^3b)(-\frac{4}{15}ab^2)$ $[-\frac{1}{6}a^4b^3]$
78. ■■□ $(-\frac{7}{9}m^2n^3)(-\frac{18}{7}mn)$ $[+2m^3n^4]$
79. ■■□ $(-\frac{1}{6}x^4)(+\frac{12}{5}x^2y)$ $[-\frac{2}{5}x^6y]$
80. ■■□ $(+\frac{3}{10}a^2b^2)(-\frac{5}{6}bc^2)$ $[-\frac{1}{4}a^2b^3c^2]$
81. ■■□ $(-\frac{4}{7}xy^3)(-\frac{21}{8}x^3y)$ $[+\frac{3}{2}x^4y^4]$
82. ■■□ $(+\frac{9}{4}a^3c)(+\frac{2}{27}a^2c^2)$ $[+\frac{1}{6}a^5c^3]$
83. ■■□ $(-\frac{3}{5}xy)(+\frac{10}{9}x^2z)(-\frac{3}{2}yz)$ $[+x^3y^2z^2]$
84. ■■□ $(+\frac{1}{2}a^2b)(-\frac{4}{3}ab^2)(+\frac{3}{4}b)$ $[-\frac{1}{2}a^3b^4]$
85. ■■□ $(-\frac{5}{6}x^3)(-\frac{9}{10}x^2y)(-\frac{4}{3}y^2)$ $[-x^5y^3]$
86. ■■□ $(+\frac{7}{8}a^2b^2)(-\frac{4}{7}bc)(+\frac{2}{3}ac^2)$ $[-\frac{1}{3}a^3b^3c^3]$
87. ■■□ $(-\frac{2}{9}xy^2)(-\frac{3}{4}x^2y)(-\frac{6}{5}xy)$ $[-\frac{1}{5}x^4y^4]$
88. ■■□ $(+\frac{3}{14}m^2n)(-\frac{7}{6}mn^2)(+4m^2n^2)$ $[-m^5n^5]$
89. ■■□ $(-\frac{1}{5}a^3)(-\frac{15}{2}ab)(+\frac{2}{3}a^2b^2)(-b^3)$ $[-a^6b^6]$
90. ■■□ $(+\frac{4}{9}x^2y)(-\frac{3}{8}xy^2)(-\frac{6}{5}yz)(+\frac{5}{2}x^2z)$ $[+\frac{1}{2}x^5y^4z^2]$

Parte Avanzata 2. Esegui le seguenti moltiplicazioni con coefficienti e lettere complesse:

91. ■□□ $(2x)(3y)$ $[6xy]$
92. ■□□ $(-4a)(2b)$ $[-8ab]$
93. ■□□ $(5x^2)(-x)$ $[-5x^3]$
94. ■□□ $(-3ab)(2a^2b)$ $[-6a^3b^2]$
95. ■□□ $(xyz)(xy)$ $[x^2y^2z]$
96. ■□□ $(-4c^3)(-3c)$ $[12c^4]$
97. ■□□ $(2a^2b)(3ab^2)$ $[6a^3b^3]$
98. ■□□ $(-xy^2)(-2xy)$ $[2x^2y^3]$
99. ■□□ $(3m)(-2n)(-p)$ $[6mnp]$
100. ■□□ $(-2a)(3b)(-c^2)$ $[6abc^2]$
101. ■■□ $(\frac{1}{2}x)(\frac{2}{3}y)$ $[\frac{1}{3}xy]$

102.	■ ■ □	$(-\frac{3}{4}a)(\frac{8}{3}b)$	$[-2ab]$
103.	■ ■ □	$(\frac{2}{5}xy^2)(-5x)$	$[-2x^2y^2]$
104.	■ ■ □	$(-\frac{1}{3}a^2)(-\frac{9}{2}ab)$	$[\frac{3}{2}a^3b]$
105.	■ ■ □	$(0, 2a)(5b)$	$[ab]$
106.	■ ■ □	$(1, 5xy)(-2xy)$	$[-3x^2y^2]$
107.	■ ■ □	$(\frac{4}{3}ab^2)(-\frac{1}{2}a)(-\frac{3}{2}b)$	$[a^2b^3]$
108.	■ ■ □	$(-\frac{5}{2}x^3)(\frac{1}{10}y)(\frac{4}{3}xz)$	$[-\frac{1}{3}x^4yz]$
109.	■ ■ □	$(0, \bar{3}x)(6y)$	$[2xy]$
110.	■ ■ □	$(-\frac{7}{8}a^2b)(0, 8c)$	$[-\frac{7}{10}a^2bc]$
111.	■ ■ ■	$(0, \bar{6}x^2y)(-\frac{3}{4}xy^2)(2z)$	$[-x^3y^3z]$
112.	■ ■ ■	$(-\frac{15}{4}a^3b)(-\frac{2}{5}b^2c)(-\frac{1}{3}ac)$	$[-\frac{1}{2}a^4b^3c^2]$
113.	■ ■ ■	$(2, 5xy^2z)(-\frac{4}{5}x^2y)(-\frac{1}{2}z^2)$	$[x^3y^3z^3]$
114.	■ ■ ■	$(-\frac{3}{2}a^n)(2a^n)$	$[-3a^{2n}]$
115.	■ ■ ■	$(-\frac{1}{3}x^{n-1})(6x^{n+1})$	$[-2x^{2n}]$
116.	■ ■ ■	$(\frac{4}{5}y^{2n})(-y^2)$	$[-\frac{4}{5}y^{2n+2}]$
117.	■ ■ ■	$(2a^m b^n)(-a^2 b^n)$	$[-2a^{m+2}b^{2n}]$
118.	■ ■ ■	$(0, \bar{1}x^n)(\frac{9}{2}x)$	$[\frac{1}{2}x^{n+1}]$
119.	■ ■ ■	$(-\frac{3}{4}a^{n+1}b^n)(\frac{2}{3}ab^2)(-2a)$	$[a^{n+3}b^{n+2}]$
120.	■ ■ ■	$(\frac{1}{2}x^{2n})(-\frac{4}{3}x^{n-1})(\frac{3}{2}x^n)$	$[-x^{4n-1}]$

3. Espressioni con addizioni, sottrazioni e moltiplicazioni

Parte Base 3. Semplifica le seguenti espressioni:

121.	■ □ □	$3x \cdot (2y) + (-4x) \cdot (-y)$	$[10xy]$
122.	■ □ □	$(-2a^2) \cdot (3b) - (4a^2) \cdot (-2b)$	$[2a^2b]$
123.	■ □ □	$(5x - 2x) \cdot (-3y) + 4x \cdot (2y - y)$	$[-5xy]$
124.	■ □ □	$2ab \cdot (-3a) - (-a^2) \cdot (4b - 5b)$	$[-7a^2b]$
125.	■ □ □	$(-x^2y) \cdot (-2xy^2) - (3x^2y) \cdot (xy^2)$	$[-x^3y^3]$

126. ■□□ $(2a^2 + 3a^2) \cdot (-2b) + (4a^2 - a^2) \cdot (3b)$ $[-a^2b]$
127. ■□□ $4x \cdot (-x^2) \cdot (2x) - (-3x^2) \cdot (x^2)$ $[-5x^4]$
128. ■□□ $(-2ab^2) \cdot (3a^2b) + (5a^3b^2) \cdot (-2b)$ $[-16a^3b^3]$
129. ■□□ $(xyz) \cdot (-2xy) + (3x^2y^2) \cdot (-z)$ $[-5x^2y^2z]$
130. ■□□ $3a \cdot (-2a^2) \cdot (-b) - (-a^3) \cdot (4b)$ $[10a^3b]$
131. ■■□ $(\frac{1}{2}x) \cdot (\frac{2}{3}y) + (-\frac{1}{3}x) \cdot (-y)$ $[\frac{2}{3}xy]$
132. ■■□ $(\frac{3}{4}a^2 - \frac{1}{4}a^2) \cdot (-2b) - (-\frac{1}{2}a^2b)$ $[-\frac{1}{2}a^2b]$
133. ■■□ $(-\frac{2}{5}x^2y) \cdot (-\frac{5}{4}xy^2) - (\frac{1}{2}x^3y^3)$ $[0]$
134. ■■□ $(\frac{1}{3}a + \frac{2}{3}a) \cdot (-\frac{3}{2}ab) + (\frac{5}{2}a^2b)$ $[a^2b]$
135. ■■□ $(-\frac{3}{8}x^3) \cdot (\frac{4}{9}x) + (\frac{1}{6}x^2) \cdot (-x^2)$ $[-\frac{1}{3}x^4]$
136. ■■□ $(\frac{1}{4}ab^2 - \frac{3}{4}ab^2) \cdot (-4a) + (-\frac{1}{2}a^2b^2)$ $[\frac{3}{2}a^2b^2]$
137. ■■□ $2x \cdot (\frac{1}{6}xy - \frac{2}{3}xy) + (\frac{1}{2}x^2y)$ $[-\frac{1}{2}x^2y]$
138. ■■□ $(-\frac{5}{6}a^2b) \cdot (\frac{3}{10}ab^2) - (-\frac{1}{4}a^3b^3)$ $[0]$
139. ■■□ $(\frac{2}{3}x^2 + \frac{1}{3}x^2) \cdot (\frac{1}{5}y - \frac{6}{5}y)$ $[-x^2y]$
140. ■■□ $(-\frac{1}{2}mn) \cdot (\frac{4}{3}m^2n) + (\frac{2}{3}m^3n^2)$ $[0]$
141. ■■□ $(\frac{1}{2}a^2b - \frac{3}{2}a^2b) \cdot (\frac{1}{4}ab - \frac{5}{4}ab) - 2a^3b^2$ $[-a^3b^2]$
142. ■■□ $(-\frac{3}{4}x^3y) \cdot (-\frac{2}{9}xy^2) + (\frac{5}{6}x^4y^3)$ $[x^4y^3]$
143. ■■□ $(2x^2y - \frac{1}{2}x^2y) \cdot (-\frac{2}{3}xy^2) + x^3y^3$ $[0]$
144. ■■□ $(-\frac{1}{5}ab^2) \cdot (-\frac{15}{2}a^2b) - (\frac{3}{4}a^3b^3 - \frac{1}{4}a^3b^3)$ $[a^3b^3]$
145. ■■□ $(\frac{5}{8}x^2 - \frac{1}{8}x^2) \cdot (-\frac{4}{5}x^3) + (\frac{1}{2}x^5)$ $[\frac{1}{10}x^5]$
146. ■■□ $(\frac{1}{3}a^2c + \frac{1}{6}a^2c) \cdot (-2bc) - (-\frac{1}{2}a^2bc^2)$ $[-\frac{1}{2}a^2bc^2]$
147. ■■□ $(-\frac{7}{4}x^4) \cdot (\frac{2}{7}y^2) + (\frac{1}{2}x^4y^2 - x^4y^2)$ $[-x^4y^2]$
148. ■■□ $(\frac{4}{3}ab^2c - \frac{1}{3}ab^2c) \cdot (\frac{1}{2}a^2bc) - a^3b^3c^2$ $[-\frac{1}{2}a^3b^3c^2]$
149. ■■□ $(-\frac{2}{9}xy^3) \cdot (\frac{9}{4}x^2y) - (-\frac{1}{2}x^3y^4) \cdot 3$ $[x^3y^4]$
150. ■■□ $(\frac{3}{5}m^2n - \frac{8}{5}m^2n) \cdot (\frac{1}{2}mn^2 - \frac{3}{2}mn^2)$ $[m^3n^3]$

Parte Avanzata 3. Semplifica le seguenti espressioni miste con gradi superiori:

151. ■■■ $0, \bar{3}a^2(6b) - (-ab)(a) + 2a^2b$ $[5a^2b]$
152. ■■■ $\{3x^2[-y(2x)]\} + 5x^3y - (-x^3y)$ $[0]$

153. ■■■■ $(-\frac{1}{2}a)(-4b^2)(-\frac{1}{2}a) + a^2b^2$ [0]
154. ■■■■ $0, 1\bar{6}x(-6x) - (-x^2) + 2x^2$ [$2x^2$]
155. ■■■■ $[(\frac{2}{3}a - a)(-6b)] - 2ab + 0, 5ab$ [$\frac{1}{2}ab$]
156. ■■■■ $(\frac{1}{4}x^2y)(-\frac{8}{3}y^2) - (-\frac{2}{3}y)(x^2y^2)$ [0]
157. ■■■■ $(a^n)(-2a) + 3a^{n+1} - a^{n+1}$ [0]
158. ■■■■ $(-\frac{1}{2}x^n)(-4x^2) - (x^{n+1})(x)$ [x^{n+2}]
159. ■■■■ $(a^nb)(-ab^n) + 2a^{n+1}b^{n+1}$ [$a^{n+1}b^{n+1}$]
160. ■■■■ $(-x^n)(-x^n) - (-x)(x^{2n-1}) - 2x^{2n}$ [0]
161. ■■■■ $[-\frac{1}{2}x^2y - (-\frac{3}{2}x^2y)] \cdot (-4xy^2) - 2x^3y^3$ [$-6x^3y^3$]
162. ■■■■ $\{0, \bar{6}ab \cdot [-1, 5a + 3a]\} - a^2b$ [0]
163. ■■■■ $(\frac{3}{4}a^2b) \cdot (-\frac{8}{9}ab^2) \cdot (\frac{3}{2}c) + a^3b^3c$ [0]
164. ■■■■ $(\frac{5}{6}x^2 - \frac{1}{3}x^2) \cdot (-\frac{12}{5}y) - (-x^2y)$ [$-\frac{1}{5}x^2y$]
165. ■■■■ $(-\frac{7}{4}xy^2) \cdot (-\frac{8}{21}x^2y) \cdot (-\frac{3}{2}z) + x^3y^3z$ [0]
166. ■■■■ $[(-2a^2b + 5a^2b) \cdot (-\frac{1}{3}ab)] - [(4a^3 - a^3) \cdot (-b^2)]$ [$2a^3b^2$]
167. ■■■■ $1, \bar{3}x \cdot (-0, 75y) - (-\frac{1}{2}x) \cdot (2y)$ [0]
168. ■■■■ $\{[(\frac{1}{2}a) \cdot (\frac{4}{5}a)] \cdot (-\frac{5}{2}b)\} - a^2b$ [0]
169. ■■■■ $(2ab - \frac{1}{2}ab) \cdot (-\frac{4}{3}a) + (-a) \cdot (-2ab)$ [0]
170. ■■■■ $(-0, 2x^2) \cdot (0, 5y^2) \cdot (-10xy) - x^3y^3$ [0]
171. ■■■■ $(-2x^n) \cdot (\frac{1}{4}x^2) - (x^{n+1}) \cdot (-\frac{1}{2}x)$ [0]
172. ■■■■ $(2a^nb^{m+1}) \cdot (-a^2b) - (-3a^{n+1}b^m) \cdot (ab^2)$ [$a^{n+2}b^{m+2}$]
173. ■■■■ $(-x^{n-1}) \cdot (-x^{n+1}) \cdot (-2x) - x^{2n+1}$ [$-3x^{2n+1}$]
174. ■■■■ $(-3x^{2n}) \cdot (2x) - [x^{2n+1} - 4x^{2n+1}] \cdot 2$ [0]
175. ■■■■ $(-\frac{4}{9}x^ny^m) \cdot (\frac{27}{8}x^2y^2) + \frac{1}{2}x^{n+2}y^{m+2}$ [$-x^{n+2}y^{m+2}$]
176. ■■■■ $(x^{n-1}) \cdot (x^2) \cdot (-x^3) - (-x^{n+2}) \cdot (2x^2)$ [x^{n+4}]
177. ■■■■ $(\frac{1}{3}a^n - a^n) \cdot (-\frac{3}{4}a^{2n}) - \frac{1}{2}a^{3n}$ [0]
178. ■■■■ $- \{ [(-x) \cdot (-2x)] \cdot (-3x) \} - 6x^3$ [0]
179. ■■■■ $(-\frac{15}{4}a^2bc) \cdot (\frac{2}{5}ab^2) \cdot (-\frac{1}{3}c^2) - \frac{1}{2}a^3b^3c^3$ [0]
180. ■■■■ $(\frac{5}{2}x^ny - 2x^ny) \cdot (-4x^ny^n) + 3x^{2n}y^{n+1}$ [$x^{2n}y^{n+1}$]

4. Divisione tra monomi

Parte Base 4. Esegui le seguenti divisioni tra monomi:

- | | | |
|----------|---|------------------------|
| 181. ■□□ | $(+15x^4y^3) : (-3x^2y)$ | $[-5x^2y^2]$ |
| 182. ■□□ | $(-24a^5b^2) : (-6a^3b)$ | $[+4a^2b]$ |
| 183. ■□□ | $(+18m^3n^4) : (+2mn^3)$ | $[+9m^2n]$ |
| 184. ■□□ | $(-36p^4q^5) : (+9p^4q^2)$ | $[-4q^3]$ |
| 185. ■□□ | $(+20x^5y^2z^3) : (-5x^2yz)$ | $[-4x^3yz^2]$ |
| 186. ■□□ | $(-42a^4b^4) : (-7a^2b^3)$ | $[+6a^2b]$ |
| 187. ■□□ | $(+56x^6y^5) : (-8x^3y^2)$ | $[-7x^3y^3]$ |
| 188. ■□□ | $(-27a^3b^2c^4) : (-9abc^3)$ | $[+3a^2bc]$ |
| 189. ■□□ | $(+64m^5n^3) : (+16m^2n^2)$ | $[+4m^3n]$ |
| 190. ■□□ | $(-45x^4y^5z) : (+5x^3y^4z)$ | $[-9xy]$ |
| 191. ■■□ | $(+\frac{3}{4}a^3b^2) : (-\frac{1}{2}ab)$ | $[-\frac{3}{2}a^2b]$ |
| 192. ■■□ | $(-\frac{5}{6}x^4y^3) : (-\frac{10}{3}x^2y)$ | $[+\frac{1}{4}x^2y^2]$ |
| 193. ■■□ | $(+\frac{8}{9}m^5n^4) : (+\frac{4}{3}m^3n^2)$ | $[+\frac{2}{3}m^2n^2]$ |
| 194. ■■□ | $(-\frac{7}{12}a^4b^5) : (+\frac{21}{8}a^2b^2)$ | $[-\frac{2}{9}a^2b^3]$ |
| 195. ■■□ | $(+\frac{15}{16}x^3y^4z^2) : (-\frac{5}{8}xy^3z)$ | $[-\frac{3}{2}x^2yz]$ |
| 196. ■■□ | $(-\frac{9}{10}p^4q^3) : (-\frac{27}{5}p^2q^2)$ | $[+\frac{1}{6}p^2q]$ |
| 197. ■■□ | $(+\frac{14}{15}a^5c^4) : (-\frac{7}{5}a^3c^3)$ | $[-\frac{2}{3}a^2c]$ |
| 198. ■■□ | $(-\frac{16}{25}x^6y^2) : (+\frac{4}{5}x^4y)$ | $[-\frac{4}{5}x^2y]$ |
| 199. ■■□ | $(+\frac{11}{12}m^3n^5) : (-\frac{22}{9}m^2n^3)$ | $[-\frac{3}{8}mn^2]$ |
| 200. ■■□ | $(-\frac{25}{36}a^4b^6) : (-\frac{5}{18}a^3b^4)$ | $[+\frac{5}{2}ab^2]$ |
| 201. ■■□ | $(-4x^3 + 7x^3 - x^3) : (+2x)$ | $[x^2]$ |
| 202. ■■□ | $(5a^2b - 8a^2b + 6a^2b) : (-3ab)$ | $[-a]$ |
| 203. ■■□ | $(-2xy^2 - 5xy^2 + 11xy^2) : (4y)$ | $[xy]$ |
| 204. ■■□ | $(9m^4n^3 - 3m^4n^3 - 10m^4n^3) : (-2m^2n^2)$ | $[2m^2n]$ |
| 205. ■■□ | $(\frac{1}{2}x^2y - \frac{3}{4}x^2y + x^2y) : (\frac{1}{4}xy)$ | $[3x]$ |
| 206. ■■□ | $(\frac{2}{3}a^3b^2 - \frac{1}{6}a^3b^2 - a^3b^2) : (-\frac{1}{2}a^2b)$ | $[ab]$ |

207. ■■■□ $(-\frac{5}{8}x^4z + \frac{1}{4}x^4z + \frac{7}{8}x^4z) : (\frac{1}{4}x^3z)$ [2x]
208. ■■■□ $(\frac{4}{5}m^3n^4 - \frac{1}{10}m^3n^4 - \frac{1}{2}m^3n^4) : (\frac{2}{5}m^2n^3)$ [$\frac{1}{2}mn$]
209. ■■■□ $(-\frac{3}{7}a^5b^3 + \frac{1}{14}a^5b^3 - \frac{1}{2}a^5b^3) : (-\frac{3}{7}a^3b^2)$ [2a²b]
210. ■■■□ $(2, 5x^3y^2 - 0, 5x^3y^2 - x^3y^2) : (-0, 5x^2y)$ [-2xy]

Parte Avanzata 4. Esegui le seguenti divisioni e le espressioni miste con gradi superiori:

211. ■■■■ $(0, \overline{6}a^4b^3c^2) : (-1, \overline{3}a^2b^2c)$ [- $\frac{1}{2}a^2bc$]
212. ■■■■ $(-1, 25x^5y^4) : (0, 5x^3y^2)$ [- $\frac{5}{2}x^2y^2$]
213. ■■■■ $(0, \overline{4}m^3n^5p^2) : (-0, \overline{8}mn^3p)$ [- $\frac{1}{2}m^2n^2p$]
214. ■■■■ $(2, 5a^3b^5) : (-0, 05ab^2)$ [-50a²b³]
215. ■■■■ $(-0, \overline{2}x^4y^3z) : (-0, \overline{1}x^2yz)$ [2x²y²]
216. ■■■■ $(\frac{14}{15}a^6b^4c) : (-0, 2\overline{3}a^4b)$ [-4a²b³c]
217. ■■■■ $(-1, \overline{6}x^3y^4) : (-1, 25xy^2)$ [$\frac{4}{3}x^2y^2$]
218. ■■■■ $(3, 125m^5n^6) : (-0, 625m^2n^3)$ [-5m³n³]
219. ■■■■ $(-0, \overline{18}a^5b^4) : (0, \overline{09}a^3b)$ [-2a²b³]
220. ■■■■ $(0, 0\overline{3}x^4y^2) : (-0, 1\overline{6}x^2y)$ [- $\frac{1}{5}x^2y$]
221. ■■■■ $(-\frac{3}{4}a^{n+2}b^{m+3}) : (-\frac{9}{8}a^n b^m)$ [$\frac{2}{3}a^2b^3$]
222. ■■■■ $(\frac{5}{6}x^{2n}y^{n+1}) : (-\frac{15}{2}x^n y^n)$ [- $\frac{1}{9}x^n y$]
223. ■■■■ $(-2a^{3n-1}b^{2n}) : (\frac{4}{3}a^{n-1}b^n)$ [- $\frac{3}{2}a^{2n}b^n$]
224. ■■■■ $(-\frac{7}{5}x^{n+4}y^{2m+1}) : (-\frac{14}{25}x^3y^{2m})$ [$\frac{5}{2}x^{n+1}y$]
225. ■■■■ $(0, \overline{3}a^{x+2}b^{y+1}) : (-0, \overline{6}a^x b)$ [- $\frac{1}{2}a^2b^y$]
226. ■■■■ $(-0, 5m^{3k}n^{k+2}) : (-0, 25m^k n^2)$ [2m^{2k}n^k]
227. ■■■■ $(\frac{9}{16}a^{2n+2}c^{3n}) : (-\frac{3}{8}a^{n+1}c^n)$ [- $\frac{3}{2}a^{n+1}c^{2n}$]
228. ■■■■ $(-\frac{12}{5}x^{3n-2}y^5) : (-\frac{6}{25}x^n y^2)$ [10x²ⁿ⁻²y³]
229. ■■■■ $(\frac{8}{27}a^{x+y}b^{2x}) : (-\frac{4}{9}a^y b^x)$ [- $\frac{2}{3}a^x b^x$]
230. ■■■■ $(-\frac{15}{4}m^{4x}n^{3y+1}) : (\frac{5}{8}m^{2x}n^{2y-1})$ [-6m^{2x}n^{y+2}]
231. ■■■■ $[(-\frac{2}{3}a^3b^2) \cdot (\frac{9}{4}a^2b)] : (-\frac{1}{2}a^4b^2)$ [3ab]
232. ■■■■ $[(-x^n y^2) \cdot (4x^2 y^n)] : (-2x^{n+1}y^{n+1})$ [2xy]
233. ■■■■ $[(\frac{3}{5}a^{n+1}b^2) : (-\frac{9}{10}ab)] \cdot (-\frac{1}{2}a^n b^n)$ [$\frac{1}{3}a^{2n}b^{n+1}$]

234. ■■■ $(1, 2x^3y^2 - 0, 4x^3y^2) : (-0, \bar{2}x^2y)$ $[-\frac{18}{5}xy]$
235. ■■■ $(\frac{1}{4}a^{2n}b^n - \frac{5}{6}a^{2n}b^n + \frac{1}{3}a^{2n}b^n) : (-\frac{1}{8}a^n b^{n-1})$ $[2a^n b]$
236. ■■■ $[(-0, 5x^4y^3) : (0, 2x^2y)] : (-\frac{5}{4}xy)$ $[2xy]$
237. ■■■ $[(-\frac{7}{3}m^{3n}n^{4m}) \cdot (-\frac{6}{7}mn)] : (2m^{2n}n^{2m})$ $[m^{n+1}n^{2m+1}]$
238. ■■■ $(\frac{5}{8}a^{x+2}c^3 - \frac{1}{4}a^{x+2}c^3) : (\frac{3}{16}a^x c)$ $[2a^2c^2]$
239. ■■■ $[(-\frac{8}{5}x^3y^2z^2) : (\frac{4}{15}xyz)] \cdot (-\frac{1}{6}xyz)$ $[x^3y^2z^2]$
240. ■■■ $[(-\frac{3}{4}a^{n+1}b^{n+2}) : (-\frac{1}{2}ab^2)] : (\frac{3}{2}a^{n-1}b^{n-1})$ $[ab]$

5. Potenze di monomi

Parte Base 5. Calcola le seguenti potenze applicando le regole dei monomi e le proprietà delle potenze:

241. ■□□ $(-2x^3y^2)^3$ $[-8x^9y^6]$
242. ■□□ $(+5a^4b)^2$ $[25a^8b^2]$
243. ■□□ $(-3m^2n^4)^4$ $[81m^8n^{16}]$
244. ■□□ $(-ab^3c^2)^5$ $[-a^5b^{15}c^{10}]$
245. ■□□ $(+4x^5yz^3)^3$ $[64x^{15}y^3z^9]$
246. ■□□ $(-10a^2b^3)^3$ $[-1000a^6b^9]$
247. ■□□ $(-x^4y^5)^6$ $[x^{24}y^{30}]$
248. ■□□ $(+2p^3q^5)^5$ $[32p^{15}q^{25}]$
249. ■□□ $(-6m^3n^2)^2$ $[36m^6n^4]$
250. ■□□ $(-x^2y^3z)^7$ $[-x^{14}y^{21}z^7]$
251. ■■□ $(-\frac{1}{2}a^3b^2)^4$ $[\frac{1}{16}a^{12}b^8]$
252. ■■□ $(+\frac{2}{3}xy^4)^3$ $[\frac{8}{27}x^3y^{12}]$
253. ■■□ $(-\frac{5}{4}m^2n^5)^2$ $[\frac{25}{16}m^4n^{10}]$
254. ■■□ $(-\frac{3}{5}a^4bc^3)^3$ $[-\frac{27}{125}a^{12}b^3c^9]$
255. ■■□ $(+\frac{1}{3}x^5y^2z)^4$ $[\frac{1}{81}x^{20}y^8z^4]$
256. ■■□ $(-\frac{4}{7}a^2b^3)^2$ $[\frac{16}{49}a^4b^6]$
257. ■■□ $(-\frac{1}{2}x^3y^4)^5$ $[-\frac{1}{32}x^{15}y^{20}]$

258. ■■■□ $(+\frac{3}{2}m^4n^2)^4$ $[\frac{81}{16}m^{16}n^8]$
259. ■■■□ $(-\frac{2}{5}a^3c^2)^3$ $[-\frac{8}{125}a^9c^6]$
260. ■■■□ $(+\frac{5}{3}xy^3z^2)^3$ $[\frac{125}{27}x^3y^9z^6]$
261. ■■■□ $(-2x^2y)^3 \cdot (-2x^2y)^2 : (-2x^2y)^4$ $[-2x^2y]$
262. ■■■□ $[(-a^3b^2)^2]^3$ $[a^{18}b^{12}]$
263. ■■■□ $(3xy^2)^5 : (3xy^2)^2 \cdot (3xy^2)$ $[81x^4y^8]$
264. ■■■□ $(-\frac{1}{2}ab^2)^4 \cdot (-\frac{1}{2}ab^2)^3 : (-\frac{1}{2}ab^2)^5$ $[\frac{1}{4}a^2b^4]$
265. ■■■□ $[(+2m^2n^3)^3]^2 : (+2m^2n^3)^4$ $[4m^4n^6]$
266. ■■■□ $(-x^2y^3)^4 : (-x^2y^3)^4 \cdot (-x^2y^3)^2$ $[x^4y^6]$
267. ■■■□ $[(-3a^2c)^2]^2$ $[81a^8c^4]$
268. ■■■□ $(5a^3b)^6 : (5a^3b)^4 : (5a^3b)$ $[5a^3b]$
269. ■■■□ $(\frac{2}{3}x^2y)^7 : [(\frac{2}{3}x^2y)^2]^3$ $[\frac{2}{3}x^2y]$
270. ■■■□ $(-4x^3y^2)^5 \cdot (-4x^3y^2)^2 : [(-4x^3y^2)^3]^2$ $[-4x^3y^2]$

Parte Avanzata 5. Calcola le seguenti potenze e semplifica le espressioni applicando le proprietà:

271. ■■■■ $-(-3x^2y^3)^2$ $[-9x^4y^6]$
272. ■■■■ $-[-(-2a^2b)^3]^2$ $[-64a^{12}b^6]$
273. ■■■■ $[-(-\frac{1}{2}m^4n)^3]^2$ $[\frac{1}{64}m^{24}n^6]$
274. ■■■■ $-\frac{1}{2}[-(-2a^3b^2)^2]^3$ $[32a^{18}b^{12}]$
275. ■■■■ $\left\{ \left[- \left(-\frac{4}{3}x^2y^3 \right)^3 \right]^0 \right\}^7$ $[1]$
276. ■■■■ $- \left[- \left(-\frac{3}{2}x^3y^2 \right)^2 \right]^3$ $[\frac{729}{64}x^{18}y^{12}]$
277. ■■■■ $(-(-a^2b^3)^3)^3$ $[a^{18}b^{27}]$
278. ■■■■ $[-\frac{3}{4}(-2xy^3)^2]^3$ $[-27x^6y^{18}]$
279. ■■■■ $-(-(-x^3y^2)^2)^2$ $[-x^{12}y^8]$
280. ■■■■ $-[-(-0, \bar{3}a^2b)^2]^3$ $[\frac{1}{729}a^{12}b^6]$
281. ■■■■ $(-\frac{1}{4}x^{3n}y^{n+2})^3$ $[-\frac{1}{64}x^{9n}y^{3n+6}]$

282. ■■■ $(-3a^{n-2}b^{2n+1})^4$ $[81a^{4n-8}b^{8n+4}]$
283. ■■■ $(\frac{2}{5}m^{2x}n^{x+1})^2$ $[\frac{4}{25}m^{4x}n^{2x+2}]$
284. ■■■ $-(-\frac{1}{2}x^n y^{3n})^5$ $[\frac{1}{32}x^{5n}y^{15n}]$
285. ■■■ $(-2a^{m+1}b^{2m-1}c^3)^3$ $[-8a^{3m+3}b^{6m-3}c^9]$
286. ■■■ $[(-x^{2n}y^n)^3]^2$ $[x^{12n}y^{6n}]$
287. ■■■ $-[-(-3a^x b^{x+2})^2]^2$ $[-81a^{4x}b^{4x+8}]$
288. ■■■ $(0, \bar{6}x^{3n}y^{n-1})^2$ $[\frac{4}{9}x^{6n}y^{2n-2}]$
289. ■■■ $(-\frac{5}{2}a^{2x+1}b^{3x-2})^2$ $[\frac{25}{4}a^{4x+2}b^{6x-4}]$
290. ■■■ $-(-m^{2n}n^{3m})^7$ $[m^{14n}n^{21m}]$
291. ■■■ $(-\frac{1}{3}x^n y^2)^2 \cdot (-3xy^n)^3$ $[-3x^{2n+3}y^{3n+4}]$
292. ■■■ $[(-a^{2n}b^{n+1})^3]^2 : (-a^{3n}b^{3n})^2$ $[a^{6n}b^6]$
293. ■■■ $-(2x^m y^n)^3 \cdot (-\frac{1}{4}x^2 y)^2$ $[-\frac{1}{2}x^{3m+4}y^{3n+2}]$
294. ■■■ $[(\frac{1}{2}a^{n-1}b)^2]^3 : (-\frac{1}{4}a^{3n-3}b^3)^2$ $[\frac{1}{4}]$
295. ■■■ $[(-x^{2n}y^{n+1})^2 \cdot (-xy^2)^n]^2$ $[x^{10n}y^{8n+4}]$
296. ■■■ $(-2a^{n+1}b^m)^3 : (-\frac{1}{2}a^n b^{m-1})^2$ $[-32a^{n+3}b^{m+2}]$
297. ■■■ $(-\frac{3}{2}x^{n+2})^3 \cdot (-\frac{4}{9}x^{n-1})^2$ $[-\frac{2}{3}x^{5n+4}]$
298. ■■■ $-[(-m^{2x}n^x)^3]^2 : (-m^{4x}n^{2x})^3$ $[1]$
299. ■■■ $(0, \bar{3}a^x b^{2y})^2 \cdot (-3a^{2x}b^y)^3$ $[-3a^{8x}b^{7y}]$
300. ■■■ $[(\frac{1}{2}x^{2n}y^m)^3 : (\frac{1}{8}x^{3n}y^{2m})]^2$ $[x^{6n}y^{2m}]$

6. Espressioni di riepilogo con tutte le operazioni

Parte Base 6. Calcola il valore delle seguenti espressioni applicando tutte le operazioni studiate:

301. ■□□ $(-2x)^2 \cdot (3x) - (5x^3)$ $[7x^3]$
302. ■□□ $(3a^2)^3 : (9a^4) + (-2a)^2$ $[7a^2]$
303. ■□□ $(-xy)^3 \cdot (-2x^2y) - (x^5y^4)$ $[x^5y^4]$
304. ■□□ $(4m^3)^2 : (-2m^2)^2 - (3m^2)$ $[m^2]$

305. ■□□ $(-2a^2b)^2 \cdot (-b) - (-3a^4b^3)$ $[-a^4b^3]$
306. ■□□ $(5x^2y)^2 : (5x^3y) - (-2xy)$ $[7xy]$
307. ■□□ $(-a)^3 \cdot (-a)^2 + (-a^5)$ $[-2a^5]$
308. ■□□ $(2x^2)^3 : (-x^4) + (-2x)^2$ $[-4x^2]$
309. ■□□ $(-3ab^2)^2 \cdot (2a) - (4a^3b^4)$ $[14a^3b^4]$
310. ■□□ $(-2x^3)^2 : (-x^2)^2 - 5x^2$ $[-x^2]$
311. ■■□ $(\frac{1}{2}x)^2 \cdot (4x^2) - (-\frac{1}{2}x^4)$ $[\frac{3}{2}x^4]$
312. ■■□ $(-\frac{2}{3}a^2)^2 : (\frac{4}{9}a) - (a^3)$ $[0]$
313. ■■□ $(-\frac{1}{2}ab)^3 \cdot (-8a) + (\frac{3}{4}a^4b^3)$ $[\frac{7}{4}a^4b^3]$
314. ■■□ $(\frac{3}{5}x^2y)^2 : (-\frac{9}{25}xy^2) + (2x^3)$ $[x^3]$
315. ■■□ $(-\frac{3}{2}m^3)^2 \cdot (\frac{4}{9}m) - (-2m^7)$ $[3m^7]$
316. ■■□ $(-\frac{1}{3}xy^2)^2 : (\frac{1}{9}x^2y) + (\frac{1}{2}y^3)$ $[\frac{3}{2}y^3]$
317. ■■□ $(-\frac{4}{5}a^2b)^2 \cdot (\frac{25}{16}a) - (\frac{1}{2}a^5b^2)$ $[\frac{1}{2}a^5b^2]$
318. ■■□ $(-\frac{1}{2}x^3)^3 : (\frac{1}{8}x^5) + (-2x^4)$ $[-3x^4]$
319. ■■□ $(\frac{5}{2}a^2c)^2 \cdot (-\frac{4}{25}ac^2) + (2a^5c^4)$ $[a^5c^4]$
320. ■■□ $(-\frac{3}{4}x^4y)^2 : (-\frac{9}{16}x^6y) - (\frac{5}{2}x^2y)$ $[-\frac{7}{2}x^2y]$
321. ■■□ $(-2x^2 + 5x^2)^2 - (4x^4) + (-3x^2)^2$ $[14x^4]$
322. ■■□ $(-a^2b - 2a^2b)^2 : (-3a^2b) + (-2a^2b)$ $[-5a^2b]$
323. ■■□ $(4xy^2 - xy^2)^3 : (3xy^2)^2 - (-2xy^2)$ $[5xy^2]$
324. ■■□ $(\frac{1}{2}m^3 - \frac{3}{2}m^3)^3 \cdot (-2m) - (-m^{10})$ $[3m^{10}]$
325. ■■□ $(-\frac{3}{4}a^2 + \frac{1}{4}a^2)^2 : (-\frac{1}{8}a^2) + a^2$ $[-a^2]$
326. ■■□ $[(-x^2y)^2 \cdot (-2xy^2)] : (-x^3y^2) - (x^2y^2)$ $[x^2y^2]$
327. ■■□ $[(-2a^2)^3 : (-4a^4)]^2 - (-3a^2)^2$ $[-5a^4]$
328. ■■□ $(\frac{2}{3}x - \frac{5}{3}x)^2 \cdot (-\frac{1}{2}x^2) + (\frac{1}{2}x^2)^2$ $[-\frac{1}{4}x^4]$
329. ■■□ $[(-3ab^2)^2 \cdot (-a^2b)] : (-3a^2b^2)^2 + (2b)$ $[b]$
330. ■■□ $(-\frac{1}{2}x^2y)^3 : (-\frac{1}{4}x^4y^2) - (-\frac{3}{2}x^2y)$ $[2x^2y]$

Parte Avanzata 6. Semplifica le seguenti espressioni contenenti tutte le operazioni studiate. Fai attenzione all'ordine di esecuzione e alle regole dei segni.

331. ■■■□ $(-2a^2b)^2 : (-a^3b^2) + (-3a) \cdot (-2a^2b) : (-a^2b)$ [-10a]
332. ■■■□ $(x^2y)^3 : (x^4y^2) - x \cdot (-xy)^2 : (xy)$ [0]
333. ■■■□ $\left[(-\frac{1}{2}ab^2)^3 : (-\frac{1}{8}a^2b^4)\right] \cdot (-4a)$ [-4a^2b^2]
334. ■■■□ $(-3x^2)^3 : (-9x^4) + \frac{1}{2}x \cdot (-4x)$ [x^2]
335. ■■■□ $\left[+(\frac{2}{3}xy^2)^2 \cdot (-\frac{9}{4}x^2y)\right] : (-x^3y^4)$ [xy]
336. ■■■□ $(-\frac{3}{5}a^2b) \cdot (-\frac{5}{3}a) - (-a^2) \cdot (-ab) : (-a)$ [0]
337. ■■■□ $(4x^3y^2 - 2x^3y^2)^2 : (-2x^5y^3) + xy$ [-xy]
338. ■■■□ $\frac{1}{4}a^4b^2 : (-\frac{1}{2}ab)^2 - a \cdot (-2a)$ [3a^2]
339. ■■■□ $(-\frac{2}{3}xy)^3 : (\frac{4}{9}x^2y^2) + \frac{1}{3}x \cdot (-y)$ [-xy]
340. ■■■□ $(-ab^2)^3 \cdot (-a^2b) : (-a^4b^5) - ab^2$ [-2ab^2]
341. ■■■■ $\left\{ [(-x^2y)^2 \cdot (-y)]^3 : (x^4y^3)^2 \right\} - x^4y^3$ [-2x^4y^3]
342. ■■■■ $\left[(-\frac{3}{4}a^2b^3)^2 : (-\frac{9}{16}a^3b^4) \right]^2 - \frac{1}{2}a^2b^4$ [\frac{1}{2}a^2b^4]
343. ■■■■ $(-\frac{5}{2}x^3y)^2 \cdot (-\frac{2}{5}xy^2)^2 : (-\frac{1}{2}x^4y^3) + 2x^4y^3$ [0]
344. ■■■■ $\left\{ \left[(\frac{1}{3}ab^2)^3 : (\frac{1}{9}a^2b^4) \right] \cdot (-3ab) \right\}^2 - a^4b^6$ [0]
345. ■■■■ $[(0, \bar{3}x^2y)^2 \cdot (-3xy^2)^3] : (-x^3y^4) - \frac{2}{3}x^4y^4$ [\frac{7}{3}x^4y^4]
346. ■■■■ $-\frac{1}{2}a^2 \cdot \left[(-\frac{4}{5}ab^2)^2 : (-\frac{8}{25}a^2b^3) \right] + a^2b$ [2a^2b]
347. ■■■■ $(-2m^2n^3)^3 : (-4m^4n^5) - \left[(-\frac{1}{2}mn^2)^2 \cdot (8n) : (-n) \right]$ [4m^2n^4]
348. ■■■■ $(-x^3y^2 + \frac{1}{2}x^3y^2)^2 : (-\frac{1}{4}x^4y^3) - x^2y$ [-2x^2y]
349. ■■■■ $\left[(-\frac{3}{2}a^2b^3)^3 : (-\frac{9}{4}a^4b^6) \right] \cdot (-\frac{2}{3}ab^2) - a^3b^5$ [-2a^3b^5]
350. ■■■■ $\left\{ (-2x^2)^3 \cdot \left[(-\frac{1}{2}x)^2 \right]^2 \right\} : x^6 + 2x^4$ [\frac{3}{2}x^4]
351. ■■■■ $(-a^n b^2)^3 : (-a^{2n} b^4) + a^n b^2$ [2a^n b^2]
352. ■■■■ $\left[(-\frac{1}{2}x^{2n}y^m)^2 \cdot (-4x^n y^{2m}) \right] : (-x^{4n} y^{3m}) - x^n y^m$ [0]

353. ■■■ $(-\frac{3}{4}a^{n+1}b^{n-1})^2 : (-\frac{9}{16}a^{2n}b^{2n-2}) - a^2$ [$-2a^2$]
354. ■■■ $(2x^m y^n)^3 : (4x^{2m} y^{2n}) - \frac{1}{2}x^m y^n$ [$\frac{3}{2}x^m y^n$]
355. ■■■ $\{ [(-a^n b^m)^2]^3 : (-a^{3n} b^{3m}) \} : (-a^{2n} b^{2m}) + a^n b^m$ [$2a^n b^m$]
356. ■■■ $(0, \overline{6}x^{2n} y^n)^2 : (0, \overline{4}x^{3n} y^{2n}) - x^n$ [0]
357. ■■■ $(-\frac{5}{2}a^{x+1}b^{x-1})^2 \cdot (-\frac{2}{5}a^x b^x) : (-\frac{5}{2}a^{2x+1}b^{2x-2}) - a^{x+1}b^x$ [0]
358. ■■■ $(-2x^{n+2} y^n)^3 : (-4x^{2n+4} y^{2n}) - (-x^{n+2} y^n)$ [$3x^{n+2} y^n$]
359. ■■■ $\left\{ \left[\left(-\frac{1}{3}a^n b^m\right)^2 \cdot (-27a^n b^m) \right] : (-3a^{2n} b^{2m}) \right\} - a^n b^m$ [0]
360. ■■■ $(-1, \overline{3}x^{2n} y^m)^2 : (-1, \overline{7}x^{3n} y^{2m}) + x^n$ [0]