Espressioni con le 4 operazioni e le potenze – Con soluzioni
Evaluating Expressions Involving Fractions – With solutions

=-=

1. $\frac{1}{2}+\left(\frac{1}{2}\right)^2-\left(\frac{1}{2}\right)^0+1=$ $\left[\frac{3}{4}\right]$

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

3. $\frac{1}{5}+\left(\frac{2}{3}\right)^2:\left(\frac{2}{6}\right)^2-4\cdot\left(\frac{17}{4}\right)^0+\frac{1}{3}=$ $\left[\frac{8}{15}\right]$

4. $\frac{1}{2}+\left(\frac{2}{3}\right)^6:\left(\frac{2}{3}\right)^4-\frac{2}{9}-\frac{2}{3}=$ $\left[\frac{1}{18}\right]$

5. $\left(\frac{2}{3}\right)^2-\frac{1}{3}+\left(\frac{1}{3}\right)^3:\left(\frac{2}{3}\right):\frac{1}{2}+\left(\frac{1}{3}\right)^0=$ $\left[\frac{11}{9}\right]$

6. $\left[\left(\frac{3}{5}\right)^2\right]^4\div\left(\frac{3}{5}\right)^6=$ $\left[\frac{9}{25}\right]$

7. $\left[\left(\frac{2}{7}\right)^2\cdot\left(\frac{2}{7}\right)^3\right]^2\div\left(\frac{2}{7}\right)^8=$ $\left[\frac{4}{49}\right]$

8. $\left[\left(\frac{2}{3}\right)^4\cdot\left(\frac{2}{3}\right)^3\right]^2\div\left(\frac{2}{3}\right)^{12}=$ $\left[\frac{4}{9}\right]$

9. $\left[\left(\frac{1}{3}\right)^6\div\left(\frac{1}{3}\right)^4\right]^2\div\left[\left(\frac{1}{3}\right)^2\cdot\left(\frac{1}{3}\right)^2\right]=$ $[1]$

10. $\left[\left(\frac{4}{9}\right)^3\div\left(\frac{2}{9}\right)^3\right]^2\div\left[\left(\frac{9}{8}\right)^2\cdot\left(\frac{16}{9}\right)^2\right]^3=$ $[1]$

11. $\left(1-\frac{1}{2}\right)^4\div\left\{\left[\left(\frac{3}{7}+\frac{1}{6}-\frac{5}{14}\right)\cdot\left(5+\frac{1}{4}\right)-\frac{1}{2}\right]^3\div\left(\frac{3}{4}\right)^2-\frac{1}{4}\right\}^3-\frac{1}{2}=$ $[0]$

12. $\left\{1-\left[1-\left(\frac{1}{3}+\frac{1}{6}\right)\right]\right\}^2\cdot\left[2-\left(\frac{1}{2}+\frac{7}{10}\right)\div3\right]^2\cdot\left(\frac{3}{4}+\frac{1}{2}\right)^2=$ $[1]$

13. $\left(3-\frac{1}{4}\right)\div\left[\left(\frac{2}{5}+\frac{1}{2}-\frac{5}{6}\right)^2\cdot\left(\frac{7}{5}+\frac{1}{10}+\frac{7}{2}\right)^2\right]\div\frac{9}{2}=$ $\left[\frac{11}{2}\right]$

14. $\left(\frac{1}{2}+\left(\frac{1}{2}+\left(\frac{1}{2}+\frac{2}{6}\right):\frac{10}{8}\right)\right):\left(\frac{3}{2}\right)^2-\left(\frac{1}{2}\right)^4:\left(\frac{1}{2}\right)^3=$ $\left[\frac{13}{54}\right]$

15. $\left[\left(\frac{3}{2}-\frac{3}{4}\right)^3\cdot\left(\frac{8}{9}\right)^2+\left(\frac{2}{3}+\frac{1}{2}+\frac{1}{6}\right)^2\cdot\frac{3}{16}\right]\cdot\left(1+\frac{1}{2}\right)^2=$ $\left[\frac{3}{2}\right]$

16. $\left[\left(\frac{15}{9}-\frac{1}{3}\right)^2-\left(1-\frac{1}{3}\right)^2\div\frac{3}{9}\right]\div\left[\frac{16}{81}\div\frac{16}{27}+\left(\frac{1}{9}\right)^2\div\frac{2}{30}+\frac{4}{27}\right]=$ $\left[\frac{2}{3}\right]$

17. $\left[\left(\frac{3}{4}\right)^3 \div \left(\frac{3}{4}\right)^2 \div \left(\frac{3}{4}\right) - \left(2-\frac{2}{3}\right)^2 \div \left(\frac{13}{6}+\frac{1}{2}\right) - \left(\frac{1}{7}-\frac{1}{21}\right)\right] \div \left(\frac{1}{3}+\frac{3}{4}-\frac{13}{84}\right) = \left[\frac{10}{39}\right]$

18. $\left\{\left[\left(\frac{2}{5}\right)^{10} \div \left(\frac{2}{5}\right)^6\right]^2 \cdot \left[\left(\frac{2}{5}\right)^8 \div \left(\frac{2}{5}\right)^3\right]\right\} \div \left[\left(\frac{2}{5}\right)^{10} \cdot \frac{2}{5}\right] = \left[\frac{4}{25}\right]$

19. $\left\{\left[\left(\frac{1}{3}\right)^4 \cdot \left(\frac{1}{3}\right)^2\right]^3 : \left(\frac{1}{3}\right)^9\right\} \div \left[\left(\frac{1}{3}\right)^3 \cdot \frac{1}{3}\right]^2 = \left[\frac{1}{3}\right]$

20. $\left[\left(\frac{3}{4}\right)^6 \div \left(\frac{3}{4}\right)^4\right]^3 \div \left[\frac{3}{4} \cdot \left(\frac{3}{4}\right)^2\right]^2 = [1]$

21. $\left\{\left[\left(1+\frac{3}{4}-\frac{1}{2}\right)^2 - \left(2-\frac{7}{4}\right)^2\right] \div \left(\frac{5}{3}-\frac{1}{6}\right)^3\right\}^2 \div \left(1-\frac{5}{9}\right)^2 = [1]$

22. $\left(\frac{2}{3}\right)^2 : \left(\frac{4}{3}\right)^2 + \left(\frac{1}{3}\right)^3 : \left(\frac{1}{3}\right)^2 + \left(\frac{1}{2}\right)^4 : \left(\frac{1}{2}\right)^2 - \left(\frac{2}{3}\right)^5 : \left(\frac{2}{3}\right)^4 + \left(\frac{4}{3}\right)^3 : \left(\frac{4}{3}\right)^3 - \left(\frac{7}{2}\right)^0 = \left[\frac{1}{6}\right]$

23. $\frac{1}{2} + \left\{\left[\left(1+\frac{4}{3}\right)^4 \cdot \left(1-\frac{2}{7}\right)^4\right]^2\right\}^6 \div \left\{\left[\left(3+\frac{2}{3}\right)^8 \div \left(1+\frac{1}{2}+\frac{7}{10}\right)^8\right]^2\right\}^3 = \left[\frac{3}{2}\right]$

24. $\left\{\left[\left(\frac{1}{2}\right)^2\right]^3 \cdot \left[\left(\frac{1}{2}\right)^3\right]^3 \div \left[\left(\frac{1}{2}\right)^3\right]^4\right\}^3 \div \left[\left(\frac{1}{2}\right) \cdot \left(\frac{1}{2}\right)^3\right]^2 = \left[\frac{1}{2}\right]$

25. $\left\{\left(\frac{1}{3}\right)^4 \cdot \left(\frac{1}{3}\right)^5 \div \left[\left(\frac{1}{3}\right)^2\right]^4\right\}^3 \div \left(\frac{1}{2}\right)^0 = \left[\frac{1}{27}\right]$

26. $\left(1+\frac{1}{2}\right)^2 \div \frac{5}{4} + \frac{9}{5} \cdot \left(2-\frac{4}{3}\right)^2 - \left(2-\frac{3}{5}\right) \cdot \frac{1}{7} - \cdot \left(1-\frac{1}{2}\right)^3 \div \frac{5}{8} = \left[\frac{11}{5}\right]$

27. $\left\{\left[\left(\frac{7}{9}\right)^{14} \div \left(\frac{7}{9}\right)^{10}\right]^2 \div \left[\left(\frac{7}{9}\right)^3 \cdot \frac{7}{9} \cdot \left(\frac{7}{9}\right)^3\right]\right\} \div \frac{7}{9} = [1]$

28. $\left\{\left[\left(\frac{19}{27}+3\right) \cdot \frac{16}{5}\right] \div \left[\frac{11}{18} \cdot \left(1+\frac{31}{33}\right)\right]\right\}^2 \cdot \left(\frac{1}{10}\right)^2 + \left(\frac{1}{2}\right)^4 \div \left(\frac{1}{2}\right)^2 = \left[\frac{3}{4}\right]$

29. $\left\{\left(\frac{15}{2^4}+\frac{21}{2^5}-1\right) \div \left[\frac{3}{2^2} - \left(\frac{1}{2^3}+\frac{1}{2^4}\right) + \frac{5}{2^3 \cdot 3}\right]\right\} \div \frac{95}{74} + 2^2 = \left[\frac{23}{5}\right]$

30. $\left\{\left[\frac{15}{3}+\frac{3}{8}-\left(\frac{1}{2}\right)^3 - \frac{9}{2}\right] \div \left[\left(\frac{4}{5}\right)^2 + \frac{3}{20} - \left(\frac{1}{5}\right)^2\right]\right\} - \left[\frac{19}{12} \div \left(\frac{3}{4}+\frac{5}{6}\right)\right] = [0]$

31. $\left[\left(3+\frac{1}{2}-\frac{5}{3}\right) \cdot \left(\frac{1}{2}\right)^2\right] \div \left\{\frac{3}{2} - \left[\frac{2}{3} + \left(\frac{2}{11}+\frac{5}{22}+\frac{7}{33}\right) \div \frac{82}{33} + \frac{1}{12}\right]^5\right\}^3 \div \frac{1}{4} = \left[\frac{44}{3}\right]$

32. $\left\{\frac{15}{16}-\left[\left(\frac{3}{2}-\frac{1}{4}\right)^2\div\frac{5}{4}-\left(\frac{1}{2}+\frac{1}{4}\right)^2\right]\right\}^2+\frac{1}{4}=$ $\left[\frac{5}{16}\right]$

33. $\left\{1-\left[1-\left(\frac{1}{6}+\frac{1}{3}\right)\right]\right\}^2\cdot\left(\frac{1}{2}+\frac{3}{4}\right)^2\cdot\left[2-\frac{1}{3}\cdot\left(\frac{7}{10}+\frac{1}{2}\right)\right]^2=$ $[1]$

34. $\left\{\left[\left(\frac{1}{2}+\frac{1}{3}\right)^2\div\left(1+\frac{1}{4}\right)^2\right]+\left[\left(\frac{4}{21}\div\frac{8}{7}+\frac{12}{7}\div\frac{3}{7}\right)\div\left(2-\frac{7}{6}\right)\right]\right\}\div\left(\frac{7}{3}\right)^2=$ $[1]$

35. $\left[\frac{1}{3}-\left(\frac{3}{5}-\frac{1}{10}\right)^2\right]\cdot\frac{3}{5}\div\frac{1}{2}+\frac{7}{4}\div\frac{5}{2}-\frac{2^2}{5}=$ $[0]$

36. $\frac{10}{23}\cdot\left[\left(\frac{2}{7}\div7+\frac{5}{49}\right)^2\div\frac{1}{7}-\left(\frac{1}{2}-\frac{1}{3}\right)^2\div\frac{5}{6}\right]=$ $\left[\frac{1}{21}\right]$

37. $\left[\left(\frac{5}{8}-\frac{1}{8}\right)^4-\left(\frac{2}{11}\cdot\frac{22}{3}-1\right)^4\right]\div\left(\frac{1}{4}+\frac{1}{9}\right)\cdot\frac{6}{5}=$ $\left[\frac{1}{6}\right]$

38. $\left[\left(\frac{7}{13}\cdot\frac{26}{21}\right)^3-\left(\frac{7}{5}\div\frac{14}{5}\right)^3\right]\div\left[\left(\frac{2}{3}\right)^2+\frac{2}{3}\div2+\frac{1}{4}\right]=$ $\left[\frac{1}{6}\right]$

39. $\left[\left(\frac{1}{2}+\frac{3}{4}-1\right)^2\div\frac{3}{16}+\frac{3}{2}+\left(\frac{1}{4}-\frac{1}{5}\right)\cdot\left(\frac{15}{3}\cdot2^2\right)\right]\div\frac{1}{3}=$ $\left[\frac{17}{2}\right]$

40. $\left(1-\frac{3}{7}\right)\cdot\left[\frac{2}{29}\cdot\left(\frac{11}{5}-\frac{3}{4}\right)+\left(\frac{3}{20}+\frac{4}{15}-\frac{3}{8}\right)^2:\left(\frac{1}{3}-\frac{1}{4}\right)^2\right]:\left(\frac{4}{5}\right)^2+\left(1-\frac{1}{2}\right)^2=$ $\left[\frac{9}{16}\right]$

41. $\left[\left(2+\frac{2}{3}\right)-\left(\frac{1}{3}+\frac{3}{4}-\frac{5}{6}\right):\left(1+\frac{1}{2}\right)^2\right]:\left[\left(1-\frac{2}{5}\right)^2\cdot\left(\frac{5}{3}\right)^2+\frac{7}{2}\cdot\left(\frac{1}{3}\right)^2\right]=$ $\left[\frac{46}{25}\right]$

42. $\left[\left(\frac{1}{3}\right)^2\div\left(\frac{1}{6}\right)^2\right]\cdot\left[\left(\frac{1}{2}\right)^4\div\left(\frac{1}{15}\div\frac{4}{15}\right)\right]:\left[\left(\frac{3}{2}\right)^2-\left(1-\frac{1}{2}\right)\right]=$ $\left[\frac{4}{7}\right]$

43. $\left\{\left[\left(\frac{1}{6}+\frac{1}{4}\right)^2\div\left(2-\frac{1}{3}\right)+\frac{5}{12}-\frac{1}{2}\right]:\left(\frac{1}{4}\right)^2-\frac{1}{3}\right\}^2+\frac{1}{4}=$ $\left[\frac{1}{4}\right]$

44. $\left(\frac{1}{3}-\frac{7}{33}\right)^2:\left(\frac{1}{11}\right)^2-\left(\frac{11}{9}\right)^4:\left(\frac{11}{9}\right)^3$ $\left[\frac{5}{9}\right]$

45. $\left\{\left[\left(\frac{5}{3}\right)^2\cdot\left(1-\frac{1}{2}\right)\cdot\left(1+\frac{1}{5}\right)^2\cdot\left(1+\frac{1}{2}\right)-\frac{3}{4}\right]:\left(\frac{5}{2}\right)^2-\left(\frac{1}{5}\right)^2\right\}:\left[\left(\frac{2}{5}\right)^3:\left(\frac{2}{5}\right)^2\right]-\frac{1}{20}=$ $\left[\frac{3}{4}\right]$

46. $\left[\left(1-\frac{2}{7}\right)\cdot\left(\frac{2}{7}+\frac{19}{7}\right):\left(1-\frac{4}{7}\right)+\left(3-\frac{4}{3}\right)^2+\left(2-\frac{1}{2}\right)^2\right]:\left(3+\frac{1}{6}\right)^2+\left(5-\frac{7}{2}\right)^2-\left(7-\frac{13}{2}\right)^2=$ $[3]$

47. $\left\{\frac{2}{3}-\left[\left(\frac{1}{2^3}+\frac{1}{2^2}\right)\cdot\frac{2}{3}\right]\right\}\div\left[3+\left(\frac{1}{3}\right)^4:\left(\frac{1}{3}\right)^3\right]+\left[\left(\frac{1}{3}\right)^0+\left(\frac{1}{3}\right)^5:\left(\frac{1}{3}\right)^4\right]\cdot\left(\frac{1}{2}\right)^3$ $\left[\frac{7}{24}\right]$

48. $\left(3-\frac{10}{7}\right):\left[\left(1+\frac{1}{2}\right)-\left(1-\frac{1}{3}\right)^2\cdot\left(\frac{3}{20}+\frac{6}{35}\right)\right]:3=$ $[1]$

49. $\left[\frac{5^2}{90}\cdot\left(\frac{2}{5}\right)^3:\left(\frac{2}{5}\right)^2+\frac{1}{2}\cdot\left(\frac{1}{3}\right)^4:\left(\frac{1}{3}\right)^3\right]:\left[\left(1+\frac{2}{3}-\frac{11}{3^2}\right)^2:\frac{4}{9}\right]=$ $\left[\frac{5}{8}\right]$

50. $\left[\left(\frac{1}{3}\right)^3:\left(\frac{1}{3}\right)^2\cdot\left(\frac{1}{3}+\frac{1}{2}\right):5+\left(\frac{1}{9}\right)^4:\left(\frac{1}{9}\right)^3\right]\cdot\frac{1}{3}+\frac{5}{6}-\left(1-\frac{2}{3}\right)^2=$ $\left[\frac{7}{9}\right]$

51. $\left[\left(\frac{1}{2}\right)^2:\left(\frac{1}{2}\right)^3\right]\cdot\left[\frac{3}{2}-\left(\frac{4}{9}\right)^2:\left(1-\frac{5}{9}\right)^2\right]=$ $[1]$

52. $\left\{\left[\left(\frac{3}{4}\right)^3\cdot\left(\frac{3}{4}\right)^2\right]^2:\left(\frac{3}{4}\right)^8+\frac{3}{4}\right\}:\frac{7}{4}+\frac{2}{3}=$ $\left[\frac{17}{12}\right]$

53. $\left\{\left[\left(\frac{4}{5}\right)^3\cdot\left(\frac{4}{5}\right)^2\right]^2:\left(\frac{4}{5}\right)^9+\frac{4}{5}\right\}:\frac{4}{5}-\frac{1}{2}=$ $\left[\frac{3}{2}\right]$

54. $\left\{\left[\left(\frac{2}{3}\right)^3:\left(\frac{4}{3}\right)^3+\frac{7}{8}\cdot\left(\frac{1}{4}\right)^0\right]^2:\left(\frac{7}{8}\right)^1-\frac{1}{7}\right\}:\frac{4}{5}-\frac{1}{2}=$ $\left[\frac{3}{4}\right]$

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

56. $\left(\frac{1}{2}\right)^0+\left[\left(\frac{3}{2}-\frac{1}{4}\right)^2-\left(1-\frac{1}{4}\right)^2\right]:\left(\frac{3}{2}\right)^2-\left(\frac{1}{2}\right)^1=$ $\left[\frac{17}{18}\right]$

57. $\left(\frac{2}{3}+\frac{2}{6}\right)^1+\left[\left(\frac{3}{5}-\frac{1}{10}\right)^2:\left(1-\frac{1}{3}\right)^2\right]-\left(\frac{1}{2}+\frac{2}{3}\right)^0-\left(\frac{5}{16}\right)^5:\left(\frac{5}{16}\right)^4=$ $\left[\frac{1}{4}\right]$

=-=

Soluzioni

=-=

$$\frac{1}{2}+\left(\frac{1}{2}\right)^{2}-\left(\frac{1}{2}\right)^{0}+1=$$

$$=\frac{1}{2}+\frac{1}{4}-1+1=$$

$$=\frac{1}{2}+\frac{1}{4}=$$

$$=\frac{2+1}{4}=\frac{3}{4}$$

=-=

$$1+\frac{3}{2}-\left(\frac{2}{3}\right)^{3}:\left(\frac{2}{3}\right)^{2}-\left(\frac{1}{2}\right)^{1}=$$

$$=1+\frac{3}{2}-\left(\frac{2}{3}\right)^{3-2}-\frac{1}{2}=$$

$$=1+\frac{3}{2}-\frac{2}{3}-\frac{1}{2}=$$

$$=\frac{6+9-4-3}{6}=\frac{8}{6}=\frac{4}{3}$$

=-=

$$\frac{1}{5}+\left(\frac{2}{3}\right)^{2}:\left(\frac{2}{6}\right)^{2}-4\cdot\left(\frac{17}{4}\right)^{0}+\frac{1}{3}=$$

$$=\frac{1}{5}+\left(\frac{2}{3}:\frac{2}{6}\right)^{2}-4\cdot 1+\frac{1}{3}=$$

$$=\frac{1}{5}+\left(\frac{\cancel{2}}{3}\cdot\frac{6}{\cancel{2}}\right)^{2}-4+\frac{1}{3}=$$

$$=\frac{1}{5}+\left(\frac{2}{1}\right)^{2}-4+\frac{1}{3}=$$

$$=\frac{1}{5}+4-4+\frac{1}{3}=$$

$$=\frac{1}{5}+\frac{1}{3}=$$

$$=\frac{3+5}{15}=\frac{8}{15}$$

=-=

=-=

$$\frac{1}{2}+\left(\frac{2}{3}\right)^{6}:\left(\frac{2}{3}\right)^{4}-\frac{2}{9}-\frac{2}{3}=$$

$$=\frac{1}{2}+\left(\frac{2}{3}\right)^{6-4}-\frac{2}{9}-\frac{2}{3}=$$

$$=\frac{1}{2}+\left(\frac{2}{3}\right)^{2}-\frac{2}{9}-\frac{2}{3}=$$

$$=\frac{1}{2}+\frac{4}{9}-\frac{2}{9}-\frac{2}{3}=$$

$$=\frac{9+8-4-12}{18}=\frac{1}{18}$$

=-=

$$\left(\frac{2}{3}\right)^{2}-\frac{1}{3}+\left(\frac{1}{3}\right)^{3}:\left(\frac{2}{3}\right):\frac{1}{2}+\left(\frac{1}{3}\right)^{0}=$$

$$=\frac{4}{9}-\frac{1}{3}+\frac{1}{27}\cdot\frac{3}{2}\cdot\frac{2}{1}+1=$$

$$=\frac{4}{9}-\frac{1}{3}+\frac{1}{9}+1=$$

$$=\frac{4-3+1+9}{9}=\frac{11}{9}$$

=-=

$$\left[\left(\frac{3}{5}\right)^{2}\right]^{4}\div\left(\frac{3}{5}\right)^{6}=$$

$$=\left(\frac{3}{5}\right)^{2\cdot 4}\div\left(\frac{3}{5}\right)^{6}=$$

$$=\left(\frac{3}{5}\right)^{8}\div\left(\frac{3}{5}\right)^{6}=$$

$$=\left(\frac{3}{5}\right)^{8-6}=$$

$$=\left(\frac{3}{5}\right)^{2}=\frac{9}{25}$$

=-=

=-=

$$\left[\left(\frac{2}{7}\right)^2\cdot\left(\frac{2}{7}\right)^3\right]^2\div\left(\frac{2}{7}\right)^8=$$

$$=\left[\left(\frac{2}{7}\right)^{2+3}\right]^2\div\left(\frac{2}{7}\right)^8=$$

$$=\left[\left(\frac{2}{7}\right)^{5}\right]^2\div\left(\frac{2}{7}\right)^8=$$

$$=\left(\frac{2}{7}\right)^{5\cdot 2}\div\left(\frac{2}{7}\right)^8=$$

$$=\left(\frac{2}{7}\right)^{10}\div\left(\frac{2}{7}\right)^8=$$

$$=\left(\frac{2}{7}\right)^{10-8}=\left(\frac{2}{7}\right)^{2}=\frac{4}{49}$$

=-=

$$\left[\left(\frac{2}{3}\right)^4\cdot\left(\frac{2}{3}\right)^3\right]^2\div\left(\frac{2}{3}\right)^{12}=$$

$$\left[\left(\frac{2}{3}\right)^4\cdot\left(\frac{2}{3}\right)^3\right]^2\div\left(\frac{2}{3}\right)^{12}=$$

$$=\left[\left(\frac{2}{3}\right)^{4+3}\right]^2\div\left(\frac{2}{3}\right)^{12}=$$

$$=\left[\left(\frac{2}{3}\right)^{7}\right]^2\div\left(\frac{2}{3}\right)^{12}=$$

$$=\left(\frac{2}{3}\right)^{7\cdot 2}\div\left(\frac{2}{3}\right)^{12}=$$

$$=\left(\frac{2}{3}\right)^{14}\div\left(\frac{2}{3}\right)^{12}=$$

$$=\left(\frac{2}{3}\right)^{14-12}=\left(\frac{2}{3}\right)^{2}=\frac{4}{9}$$

=-=

=-=

$$\left[\left(\frac{1}{3}\right)^6 \div \left(\frac{1}{3}\right)^4\right]^2 \div \left[\left(\frac{1}{3}\right)^2 \cdot \left(\frac{1}{3}\right)^2\right] =$$

$$\left[\left(\frac{1}{3}\right)^6 \div \left(\frac{1}{3}\right)^4\right]^2 \div \left[\left(\frac{1}{3}\right)^2 \cdot \left(\frac{1}{3}\right)^2\right] =$$

$$= \left[\left(\frac{1}{3}\right)^{6-4}\right]^2 \div \left[\left(\frac{1}{3}\right)^{2+2}\right] =$$

$$= \left[\left(\frac{1}{3}\right)^2\right]^2 \div \left(\frac{1}{3}\right)^4 =$$

$$= \left(\frac{1}{3}\right)^{2\cdot 2} \div \left(\frac{1}{3}\right)^4 =$$

$$= \left(\frac{1}{3}\right)^4 \div \left(\frac{1}{3}\right)^4 = 1$$

=-=

$$\left[\left(\frac{4}{9}\right)^3 \div \left(\frac{2}{9}\right)^3\right]^2 \div \left[\left(\frac{9}{8}\right)^2 \cdot \left(\frac{16}{9}\right)^2\right]^3 =$$

$$= \left[\left(\frac{4}{9} \div \frac{2}{9}\right)^3\right]^2 \div \left[\left(\frac{9}{8}\right)^2 \cdot \left(\frac{16}{9}\right)^2\right]^3 =$$

$$= \left[\left(\frac{4}{{}_1\cancel{9}} \cdot \frac{\cancel{9}^1}{2}\right)^3\right]^2 \div \left[\left(\frac{{}^1\cancel{9}}{8} \cdot \frac{16}{\cancel{9}_1}\right)^2\right]^3 =$$

$$= \left[(2)^3\right]^2 \div \left[(2)^2\right]^3 =$$

$$= 2^6 \div 2^6 =$$

$$= 2^{6-6} = 2^0 = 1$$

=-=

=-=

$$\left(1-\frac{1}{2}\right)^4 \div \left\{\left[\left(\frac{3}{7}+\frac{1}{6}-\frac{5}{14}\right)\cdot\left(5+\frac{1}{4}\right)-\frac{1}{2}\right]^3 \div \left(\frac{3}{4}\right)^2-\frac{1}{4}\right\}^3-\frac{1}{2}=$$

$$\left(1-\frac{1}{2}\right)^4 \div \left\{\left[\left(\frac{3}{7}+\frac{1}{6}-\frac{5}{14}\right)\cdot\left(5+\frac{1}{4}\right)-\frac{1}{2}\right]^3 \div \left(\frac{3}{4}\right)^2-\frac{1}{4}\right\}^3-\frac{1}{2}=$$

$$=\frac{1}{16}\div\left\{\left[\left(\frac{18+7-15}{42}\right)\cdot\frac{21}{4}-\frac{1}{2}\right]^3\div\frac{9}{16}-\frac{1}{4}\right\}^3-\frac{1}{2}=$$

$$=\frac{1}{16}\div\left\{\left[\frac{{}^{5}\cancel{10}}{{}_{2}\cancel{42}}\cdot\frac{\cancel{21}^{1}}{\cancel{4}_{2}}-\frac{1}{2}\right]^3\div\frac{9}{16}-\frac{1}{4}\right\}^3-\frac{1}{2}=$$

$$=\frac{1}{16}\div\left\{\left[\frac{3}{4}\right]^3\div\frac{9}{16}-\frac{1}{4}\right\}^3-\frac{1}{2}=$$

$$=\frac{1}{16}\div\left\{\frac{3}{4}-\frac{1}{4}\right\}^3-\frac{1}{2}=$$

$$=\frac{1}{16}\div\left\{\frac{1}{2}\right\}^3-\frac{1}{2}=$$

$$=\frac{1}{{}_{2}\cancel{16}}\div\frac{1}{\cancel{8}_{1}}-\frac{1}{2}=\frac{1}{2}-\frac{1}{2}=0$$

=-=

$$\left\{1-\left[1-\left(\frac{1}{3}+\frac{1}{6}\right)\right]\right\}^2\cdot\left[2-\left(\frac{1}{2}+\frac{7}{10}\right)\div 3\right]^2\cdot\left(\frac{3}{4}+\frac{1}{2}\right)^2=$$

$$=\left\{1-\left[1-\frac{2+1}{6}\right]\right\}^2\cdot\left[2-\frac{5+7}{10}\div 3\right]^2\cdot\left(\frac{3+2}{4}\right)^2=$$

$$=\left\{1-\left[1-\frac{\cancel{3}^{1}}{\cancel{6}_{2}}\right]\right\}^2\cdot\left[2-\frac{12}{10}\cdot\frac{1}{3}\right]^2\cdot\left(\frac{5}{4}\right)^2=$$

$$=\left\{1-\left[1-\frac{\cancel{3}^{1}}{\cancel{6}_{2}}\right]\right\}^2\cdot\left[2-\frac{{}^{2}\cancel{{}^{4}}\cancel{12}}{\cancel{10}_{5}}\cdot\frac{1}{\cancel{3}_{1}}\right]^2\cdot\frac{25}{16}=$$

$$=\left\{1-\frac{1}{2}\right\}^2\cdot\left[\frac{10-2}{5}\right]^2\cdot\frac{25}{16}=$$

$$=\frac{1}{{}_{1}\cancel{4}}\cdot\frac{\cancel{64}^{\cancel{16}^{1}}}{{}_{1}\cancel{25}}\cdot\frac{\cancel{25}^{1}}{\cancel{16}_{1}}=1$$

=-=

=-=

$$\left(3-\frac{1}{4}\right)\div\left[\left(\frac{2}{5}+\frac{1}{2}-\frac{5}{6}\right)^2\cdot\left(\frac{7}{5}+\frac{1}{10}+\frac{7}{2}\right)^2\right]\div\frac{9}{2}=$$

$$=\left(\frac{12-1}{4}\right)\div\left[\left(\frac{12+15-25}{30}\right)^2\cdot\left(\frac{14+1+35}{10}\right)^2\right]\div\frac{9}{2}=$$

$$=\frac{11}{4}\div\left[\left(\frac{\cancel{2}^{1}}{\cancel{30}_{15}}\right)^2\cdot\left(\frac{5\cancel{0}}{1\cancel{0}}\right)^2\right]\div\frac{9}{2}=$$

$$=\frac{11}{4}\div\left[\frac{1}{225}\cdot 25\right]\div\frac{9}{2}=$$

$$=\frac{11}{4}\div\frac{1}{9}\div\frac{9}{2}=$$

$$=\frac{11}{4}\cdot\frac{9}{1}\cdot\frac{2}{9}=\frac{11}{2}$$

=-=

$$\left(\frac{1}{2}+\left(\frac{1}{2}+\left(\frac{1}{2}+\frac{2}{6}\right):\frac{10}{8}\right)\right):\left(\frac{3}{2}\right)^2-\left(\frac{1}{2}\right)^4:\left(\frac{1}{2}\right)^3=$$

$$=\left(\frac{1}{2}+\left(\frac{1}{2}+\left(\frac{1}{2}+\frac{1}{3}\right)\cdot\frac{4}{5}\right)\right)\cdot\frac{4}{9}-\frac{1}{2}=$$

$$=\left(\frac{1}{2}+\left(\frac{1}{2}+\frac{5}{{}_{3}\cancel{6}}\cdot\frac{\cancel{4}^{2}}{5}\right)\right)\cdot\frac{4}{9}-\frac{1}{2}=$$

$$=\left(\frac{1}{2}+\left(\frac{1}{2}+\frac{2}{3}\right)\right)\cdot\frac{4}{9}-\frac{1}{2}=$$

$$=\left(\frac{1}{2}+\left(\frac{3+4}{6}\right)\right)\cdot\frac{4}{9}-\frac{1}{2}=$$

$$=\left(\frac{1}{2}+\frac{7}{6}\right)\cdot\frac{4}{9}-\frac{1}{2}=$$

$$=\left(\frac{3+7}{6}\right)\cdot\frac{4}{9}-\frac{1}{2}=$$

$$=\left(\frac{10}{{}_{3}\cancel{6}}\right)\cdot\frac{\cancel{4}^{2}}{9}-\frac{1}{2}=$$

$$=\frac{20}{27}-\frac{1}{2}=\frac{40-27}{54}=\frac{13}{54}$$

=-=