# CHUYÊN ĐỀ : THỰC HIỆN PHÉP TÍNH

**1.Các kiến thức vận dụng**:

+ Tính chất của phép cộng , phép nhân

+ Các phép toán về lũy thừa:

$$a^n = \underbrace{a.a....a}_{n} \ ; \quad a^m.a^n = a^{m+n} \ ; \quad a^m : a^n = a^{m-n} \ ( a \neq 0, m \geq n)$$

$$(a^m)^n = a^{m.n} \ ; \quad ( a.b)^n = a^n .b^n \ ; \ (\frac{a}{b})^n = \frac{a^n}{b^n} (b \neq 0)$$

**2.Các dạng bài tập**

## Dạng 1: RÚT GỌN

Bài 1: Thực hiện phép tính:

a, $\dfrac{2^{12}.3^5 - 4^6.9^2}{(2^2.3)^6} - \dfrac{5^{10}.7^3 - 25^5.49^2}{(125.7)^3 + 5^9.14^3}$    b, $\dfrac{2^{18}.18^7.3^3 + 3^{15}.2^{15}}{2^{10}.6^{15} + 3^{14}.15.4^{13}}$    c, $\dfrac{4^6.9^5 + 6^9.120}{8^4.3^{12} - 6^{11}}$

HD :

a, Ta có: $\dfrac{2^{12}.3^5 - 4^6.9^2}{(2^2.3)^6} - \dfrac{5^{10}.7^3 - 25^5.49^2}{(125.7)^3 + 5^9.14^3} = \dfrac{2^{12}.3^5 - (2^2)^6.(3^2)^2}{2^{12}.3^6} - \dfrac{5^{10}.7^3 - (5^2)^5.(7^2)^2}{(5^3)^3.7^3 + 5^9.2^3.7^3}$

$= \dfrac{2^{12}.3^5 - 2^{12}.3^4}{2^{12}.3^6} - \dfrac{5^{10}.7^3 - 5^{10}.7^4}{5^9.7^3 + 5^9.2^3.7^3} = \dfrac{2^{12}.3^4(3-1)}{2^{12}.3^6} - \dfrac{5^{10}.7^3(1-7)}{5^9.7^3(1+8)} = \dfrac{2}{3^2} - \dfrac{5.6}{9} = \dfrac{-28}{9}$

b, Ta có: $\dfrac{2^{18}.18^7.3^3 + 3^{15}.2^{15}}{2^{10}.6^{15} + 3^{14}.15.4^{13}} = \dfrac{2^{18}.2^7.3^{14}.3^3 + 3^{15}.2^{15}}{2^{10}.2^{15}.3^{15} + 3^{14}.3.5.2^{28}} = \dfrac{2^{25}.3^{17} + 3^{15}.2^{15}}{2^{25}.3^{15} + 3^{15}.2^{28}.5}$

$= \dfrac{2^{15}.3^{15}(2^{10}.3^2 + 1)}{2^{25}.3^{15}(1 + 2^3.5)} = \dfrac{(2^{10}.3^2 + 1)}{2^{10}41}$

c, Ta có: $\dfrac{4^6.9^5 + 6^9.120}{8^4.3^{12} - 6^{11}} = \dfrac{(2^2)^6.(3^2)^5 + 2^9.3^9.2^3.3.5}{(2^3)^4.3^{12} - 2^{11}.3^{11}} = \dfrac{2^{12}.3^{10} + 2^{12}.3^{10}.5}{2^{12}.3^{12} - 2^{11}.3^{11}}$

$= \dfrac{2^{12}.3^{10}(1+5)}{2^{11}.3^{11}(2.3-1)} = \dfrac{2.6}{3.5} = \dfrac{4}{5}$

Bài 2: Thực hiện phép tính:

a, $\dfrac{5.4^{15}.9^9 - 4.3^{20}.8^9}{5.2^{29}.9^{16} - 7.2^{29}.27^6}$    b, $\dfrac{2^4.5^2.11^2.7}{2^3.5^3.7^2.11}$    c,

$\dfrac{5^{11}.7^{12} + 5^{11}.7^{11}}{5^{12}.7^{11} + 9.5^{11}.7^{11}}$

HD :

a, Ta có: $\dfrac{5.4^{15}.9^9 - 4.3^{20}.8^9}{5.2^{29}.3^{16} - 7.2^{29}.27^6} = \dfrac{5.2^{30}.3^{18} - 2^{29}.3^{20}}{5.2^{29}.3^{16} - 7.2^{29}.3^{18}} = \dfrac{2^{29}.3^{18}(5.2 - 3^2)}{2^{29}.3^{16}(5 - 7.3^2)} = \dfrac{3^2}{-58} = \dfrac{-9}{58}$

b, Ta có: $\dfrac{2^4.5^2.11^2.7}{2^3.5^3.7^2.11} = \dfrac{2.11}{5.7} = \dfrac{22}{35}$

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c, Ta có: $\dfrac{5^{11}.7^{12}+5^{11}.7^{11}}{5^{12}.7^{11}+9.5^{11}.7^{11}}=\dfrac{5^{11}.7^{11}\left(7+1\right)}{5^{11}.7^{11}\left(5+9\right)}=\dfrac{8}{14}=\dfrac{4}{7}$

**Bài 3:** Thực hiện phép tính:

a, $\dfrac{11.3^{22}.3^7-9^{15}}{(2.3^{14})^2}$ 
b, $\dfrac{2^{10}.3^{10}-2^{10}.3^9}{2^9.3^{10}}$ 
c, $\dfrac{4^5.9^4-2.6^9}{2^{10}.3^8+6^8.20}$

HD :

a, Ta có: $\dfrac{11.3^{22}.3^7-9^{15}}{(2.3^{14})^2}=\dfrac{11.3^{29}-3^{30}}{2^2.3^{28}}=\dfrac{3^{29}.\left(11-3\right)}{2^2.3^{28}}=\dfrac{3.8}{4}=6$

b, Ta có: $\dfrac{2^{10}.3^{10}-2^{10}.3^9}{2^9.3^{10}}=\dfrac{2^{10}.3^9\left(3-1\right)}{2^9.3^{10}}=\dfrac{2.2}{3}=\dfrac{4}{3}$

c, Ta có: $\dfrac{4^5.9^4-2.6^9}{2^{10}.3^8+6^8.20}=\dfrac{2^{10}.3^8-2^{10}.3^9}{2^{10}.3^8+2^{10}.3^8.5}=\dfrac{2^{10}.3^8\left(1-3\right)}{2^{10}.3^8\left(1+5\right)}=\dfrac{-2}{6}=\dfrac{-1}{3}$

**Bài 4:** Thực hiện phép tính:

a, $\dfrac{2^{12}.3^5-4^6.9^2}{(2^2.3)^6+8^4.3^5}-\dfrac{5^{10}.7^3-25^5.49^2}{(125.7)^3+5^9.14^3}$ 
b, $\dfrac{5.4^{15}.9^9-4.3^{20}.8^9}{5.2^9.6^{19}-7.2^{29}.27^6}$ 
c, $\dfrac{4^5.9^4-2.6^9}{2^{10}.3^8+6^8.20}$

HD:

a, Ta có : $\dfrac{2^{12}.3^5-4^6.9^2}{(2^2.3)^6+8^4.3^5}-\dfrac{5^{10}.7^3-25^5.49^2}{(125.7)^3+5^9.14^3}$

$=$

$\dfrac{2^{12}.3^5-2^{12}.3^4}{2^{12}.3^6+2^{12}.3^5}-\dfrac{5^{10}.7^3-5^{10}.7^4}{5^9.7^3+5^9.7^3.2^3}=\dfrac{2^{12}.3^4\left(3-1\right)}{2^{12}.3^5\left(3+1\right)}-\dfrac{5^{10}.7^3\left(1-7\right)}{5^9.7^3\left(1+8\right)}=\dfrac{5.\left(-6\right)}{9}=\dfrac{-10}{3}$

b, Ta có : $\dfrac{5.4^{15}.9^9-4.3^{20}.8^9}{5.2^9.6^{19}-7.2^{29}.27^6}=\dfrac{5.2^{30}.3^{18}-3^{20}.2^{29}}{5.2^{28}.3^{19}-7.2^{29}.3^{18}}=\dfrac{2^{29}.3^{18}\left(5.2-3^2\right)}{2^{28}.3^{18}\left(5.3-7.2\right)}=\dfrac{2}{1}=2$

c, Ta có : $\dfrac{4^5.9^4-2.6^9}{2^{10}.3^8+6^8.20}=\dfrac{2^{10}.3^8-2^{10}.3^9}{2^{10}.3^8+2^{10}.3^8.5}=\dfrac{2^{10}.3^8\left(1-3\right)}{2^{10}.3^8\left(1+5\right)}=\dfrac{-2}{6}=\dfrac{-1}{3}$

**Bài 5:** Thực hiện phép tính:

a, $\dfrac{15.4^{12}.9^7-4.3^{15}.8^8}{19.2^{24}.3^{14}-6.4^{12}.27^5}$ 
b, $\dfrac{3^{15}.2^{22}+6^{16}.4^4}{2.9^9.8^7-7.27^5.2^{23}}$ 
c, $\dfrac{16^3.3^{10}+120.6^9}{4^6.3^{12}+6^{11}}$

HD :

a, Ta có: $\dfrac{15.4^{12}.9^7-4.3^{15}.8^8}{19.2^{24}.3^{14}-6.4^{12}.27^5}=\dfrac{5.2^{24}.3^{15}-2^{26}.3^{15}}{19.2^{24}.3^{14}-2^{25}.3^{16}}=\dfrac{2^{24}.3^{15}\left(5-2^2\right)}{2^{24}.3^{24}\left(19-2.3^2\right)}=\dfrac{3}{1}=3$

b, Ta có : $\dfrac{3^{15}.2^{22}+6^{16}.4^4}{2.9^9.8^7-7.27^5.2^{23}}=\dfrac{3^{15}.2^{22}+2^{24}.3^{16}}{2^{22}.3^{18}-7.3^{15}.2^{23}}=\dfrac{2^{22}.3^{15}\left(1+2^2.3\right)}{2^{22}.3^{15}\left(3^3-7.2\right)}=\dfrac{13}{-5}=\dfrac{-13}{5}$

c, Ta có: $\dfrac{\left(2^4\right)^3.3^{10}+2^3.3.5.\left(2.3\right)^9}{\left(2^2\right)^6.3^{12}+\left(2.3\right)^{11}}=\dfrac{2^{12}.3^{10}+2^{12}.3^{10}.5}{2^{12}.3^{12}+2^{11}.3^{11}}=\dfrac{2^{12}.3^{10}\left(1+5\right)}{2^{11}.3^{11}\left(2.3+1\right)}=\dfrac{2.6}{3.7}=\dfrac{12}{21}$

**Bài 6:** Thực hiện phép tính :

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a, $A = \dfrac{2^{12}.3^5 - 4^6.9^2}{\left(2^2.3\right)^6 + 8^4.3^5} - \dfrac{5^{10}.7^3 - 25^5.49^2}{\left(125.7\right)^3 + 5^9.14^3}$  b, $\dfrac{5.4^{15}.9^9 - 4.3^{20}.8^9}{5.2^{10}.6^{12} - 7.2^{29}.27^6}$

**Bài 7:** Thực hiện phép tính:

a, $A = \dfrac{2^{12}.3^5 - 4^6.9^2}{\left(2^2.3\right)^6 + 8^4.3^5}$  b, $B = \dfrac{4^5.9^4 - 2.6^9}{2^{10}.3^8 + 6^8.20}$

**Bài 8:** Thực hiện phép tính :

a, $\dfrac{3^{10}.11 + 3^{10}.5}{3^9.2^4}$  b, $\dfrac{2^{10}.13 + 2^{10}.65}{2^8.104}$

**Bài 9:** Thực hiện phép tính:

a, $\dfrac{2^{30}.5^7 + 2^{13}.5^{27}}{2^{27}.5^7 + 2^{10}.5^{27}}$  b, $\dfrac{\left(-3\right)^6.15^5 + 9^3.\left(-15\right)^6}{\left(-3\right)^{10}.5^5.2^3}$

**Bài 10:** Thực hiện phép tính:

a, $\dfrac{5^2.6^{11}.16^2 + 6^2.12^6.15^2}{2.6^{12}.10^4 - 81^2.960^3}$  b, $A = \dfrac{2^{19}.27^3.5 - 15.\left(-4\right)^9.9^4}{6^9.2^{10} - \left(-12\right)^{10}}$

**Bài 11:** Thực hiện phép tính:

a, $\left[\dfrac{\left(0,8\right)^5}{\left(0,4\right)^6} + \dfrac{2^{15}.9^4}{6^6.8^3}\right] : \dfrac{45^{10}.5^{20}}{75^{15}}$  b, $A = \dfrac{2.5^{22} - 9.5^{21}}{25^{10}} : \dfrac{5\left(3.7^{15} - 19.7^{14}\right)}{7^{16} + 3.7^{15}}$

**Bài 12:** Tính giá trị của biểu thức: $A = \dfrac{\left(\dfrac{2}{5}\right)^7 .5^7 + \left(\dfrac{9}{4}\right)^3 : \left(\dfrac{3}{16}\right)^3}{2^7.5^7 + 512}$

**Bài 13:** Tính biểu thức: $B = \sqrt{2\dfrac{14}{25}} - \sqrt{1,21} + \dfrac{0,6 - \dfrac{3}{7} - \dfrac{3}{13}}{1,2 - \dfrac{6}{7} - \dfrac{6}{13}} : \dfrac{-1\dfrac{1}{6} + 0,875 - 0,7}{\dfrac{1}{3} - 0,25 + 0,2}$

**Bài 14:** Tính biểu thức: $A = -84\left(\dfrac{-1}{3} + \dfrac{1}{4} - \dfrac{1}{7}\right) + 51.\left(-37\right) - 51.\left(-137\right) + \dfrac{3^3.12^6}{\left(27.4^2\right)^3}$

**Bài 15:** Thực hiện phép tính:
a, $1024 : (17.2^5 + 15.2^5)$  b, $5^3.2 + (23 + 4^0) : 2^3$  c, $(5.3^5 + 17.3^4) : 6^2$

HD :

  a, Ta có: $1024 : (17.2^5 + 15.2^5) = 2^{10} : \left[2^5(17 + 15)\right] = 2^{10} : \left(2^5.2^5\right) = 1$

  b, Ta có: $5^3.2 + (23 + 4^0) : 2^3 = 5^3.2 + 24 : 2^3 = 250 + 3 = 253$

  c, Ta có: $(5.3^5 + 17.3^4) : 6^2 \left[3^4(3.5 + 17)\right] : 3^2.2^2 = \left(3^4.32\right) : 3^2.2^2 = \dfrac{3^4.2^5}{3^2.2^2} = 9.8 = 72$

**Bài 16:** Thực hiện phép tính:
a, $(10^2 + 11^2 + 12^2) : (13^2 + 14^2)$  b, $(2^3.9^4 + 9^3.45) : (9^2.10 - 9^2)$

HD :

  a, Ta có: $(10^2 + 11^2 + 12^2) : (13^2 + 14^2) = \left(100 + 121 + 144\right) : \left(169 + 196\right) = 365 : 365 = 1$

c Ta có : $(2^3.9^4 + 9^3.45) : (9^2.10 - 9^2) =$

$(2^3.3^8 + 3^{11}.5) : (3^2.10 + 3^2) = \dfrac{3^8(8 + 3^3.5)}{3^2.11} = \dfrac{3^6.143}{11} = 13.3^6$

**Bài 17:** Thực hiện phép tính:

a, $\left[(3^{14}.69 + 3^{14}.12) : 3^{16} - 7\right] : 2^4$          b, $24^4 : 3^4 - 32^{12} : 16^{12}$

HD :

a, Ta có:

$\left[(3^{14}.69 + 3^{14}.12) : 3^{16} - 7\right] : 2^4$

$= \left[(3^{14}.3.23 + 3^{14}.3.2^2) : 3^{16} - 7\right] : 2^4 = \left[(3^{15}.23 + 3^{15}.4) : 3^{16} - 7\right] : 2^4$

$= \left[3^{15}.27 : 3^{16} - 7\right] : 2^4 = (9 - 7) : 2^4 = \dfrac{1}{2^3}$

b, Ta có: $24^4 : 3^4 - 32^{12} : 16^{12} = (24:3)^4 - (32:16)^{12} = 8^4 - 2^{12} = 2^{12} - 2^{12} = 0$

**Bài 18:** Thực hiện phép tính :

a, $2010^{2010}\left(7^{10} : 7^8 - 3.2^4 - 2^{2010} : 2^{2010}\right)$        b, $\left(2^{100} + 2^{101} + 2^{102}\right) : \left(2^{97} + 2^{98} + 2^{99}\right)$

HD :

a, Ta có : $2010^{2010}\left(7^{10} : 7^8 - 3.2^4 - 2^{2010} : 2^{2010}\right) = 2010^{2010}(49 - 3.16 - 1) = 0$

**Bài 19:** Tính: $A = \dfrac{\dfrac{-11}{2} + \dfrac{\dfrac{-5}{3}}{1 - \dfrac{4}{3}}}{\dfrac{3}{5} - \dfrac{\dfrac{-2}{5}}{\dfrac{4}{5} - \dfrac{2}{3}}}$          $B = \dfrac{1 - \dfrac{1}{1 + \dfrac{4}{3}}}{2 + \dfrac{1}{3} - \dfrac{3}{7}}$

**Bài 20:** Thực hiện phép tính : $\dfrac{45}{19} - \left(\dfrac{1}{2} + \left(\dfrac{1}{3} + \left(\dfrac{1}{4}\right)^{-1}\right)^{-1}\right)^{-1}$

HD :

$= \dfrac{45}{19} - \dfrac{1}{\dfrac{1}{2} + \dfrac{1}{\dfrac{1}{3} + 4}} = \dfrac{45}{19} - \dfrac{26}{19} = 1$

**Bài 21:** Rút gọn : $A = \left(\dfrac{3}{2} - \dfrac{2}{5} + \dfrac{1}{10}\right) : \left(\dfrac{3}{2} - \dfrac{2}{3} + \dfrac{1}{12}\right)$

**Bài 1:** Thực hiện phép tính: $\dfrac{\dfrac{1}{2003}+\dfrac{1}{2004}-\dfrac{1}{2005}}{\dfrac{5}{2003}+\dfrac{5}{2004}-\dfrac{5}{2005}}-\dfrac{\dfrac{2}{2002}+\dfrac{2}{2003}-\dfrac{2}{2004}}{\dfrac{3}{2002}+\dfrac{3}{2003}-\dfrac{3}{2004}}$

HD:

Ta có : $\dfrac{\dfrac{1}{2003}+\dfrac{1}{2004}-\dfrac{1}{2005}}{\dfrac{5}{2003}+\dfrac{5}{2004}-\dfrac{5}{2005}}-\dfrac{\dfrac{2}{2002}+\dfrac{2}{2003}-\dfrac{2}{2004}}{\dfrac{3}{2002}+\dfrac{3}{2003}-\dfrac{3}{2004}}=$

$\dfrac{\dfrac{1}{2003}+\dfrac{1}{2004}-\dfrac{1}{2005}}{5\left(\dfrac{1}{2003}+\dfrac{1}{2004}-\dfrac{1}{2005}\right)}-\dfrac{2\left(\dfrac{1}{2002}+\dfrac{1}{2003}-\dfrac{1}{2004}\right)}{3\left(\dfrac{1}{2002}+\dfrac{1}{2003}-\dfrac{1}{2004}\right)}=\dfrac{1}{5}-\dfrac{2}{3}=\dfrac{-7}{15}$

**Bài 2:** Thực hiện phép tính: $\left(\dfrac{1,5+1-0,75}{2,5+\dfrac{5}{3}-1.25}+\dfrac{0,375-0,3+\dfrac{3}{11}+\dfrac{3}{12}}{-0,625+0,5-\dfrac{5}{11}-\dfrac{5}{12}}\right):\dfrac{1890}{2005}+115$

HD:

Ta có : $\left(\dfrac{1,5+1-0,75}{2,5+\dfrac{5}{3}-1.25}+\dfrac{0,375-0,3+\dfrac{3}{11}+\dfrac{3}{12}}{-0,625+0,5-\dfrac{5}{11}-\dfrac{5}{12}}\right):\dfrac{1890}{2005}+115$

$=\left(\dfrac{\dfrac{3}{2}+\dfrac{3}{3}-\dfrac{3}{4}}{\dfrac{5}{2}+\dfrac{5}{3}-\dfrac{5}{4}}+\dfrac{\dfrac{3}{8}-\dfrac{3}{10}+\dfrac{3}{11}+\dfrac{3}{12}}{\dfrac{-5}{8}+\dfrac{5}{10}-\dfrac{5}{11}-\dfrac{5}{12}}\right):\dfrac{378}{401}+115=$

$\left(\dfrac{3}{5}+\dfrac{3}{-5}\right):\dfrac{378}{401}+115=0:\dfrac{378}{401}+115=115$

**Bài 3:** Thực hiện phép tính: $\dfrac{\dfrac{1}{9}-\dfrac{1}{7}-\dfrac{1}{11}}{\dfrac{4}{9}-\dfrac{4}{7}-\dfrac{4}{11}}+\dfrac{0,6-\dfrac{3}{25}-\dfrac{3}{125}-\dfrac{3}{625}}{\dfrac{4}{5}-0,16-\dfrac{4}{125}-\dfrac{4}{625}}$

HD:

Ta có : $\dfrac{\dfrac{1}{9}-\dfrac{1}{7}-\dfrac{1}{11}}{\dfrac{4}{9}-\dfrac{4}{7}-\dfrac{4}{11}}+\dfrac{0,6-\dfrac{3}{25}-\dfrac{3}{125}-\dfrac{3}{625}}{\dfrac{4}{5}-0,16-\dfrac{4}{125}-\dfrac{4}{625}}=\dfrac{1}{4}+\dfrac{3}{4}=1$

**Bài 4:** Thực hiện phép tính: $564.\left(\dfrac{12+\dfrac{12}{7}-\dfrac{12}{25}-\dfrac{12}{71}}{4+\dfrac{4}{7}-\dfrac{4}{25}-\dfrac{4}{71}}:\dfrac{3+\dfrac{3}{13}+\dfrac{3}{19}+\dfrac{3}{101}}{5+\dfrac{5}{13}+\dfrac{5}{19}+\dfrac{5}{101}}\right)$

HD:

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