Exercícios: Potenciação

Calcule:

1. $(-3)^2 =$
2. $-3^2 =$
3. $-2^3 =$
4. $-(-2)^3 =$
5. $\left(\frac{2}{3}\right)^3 =$
6. $\left(-\frac{1}{3}\right)^4 =$
7. $-\left(-\frac{3}{2}\right)^3 =$
8. $(-1)^{10} =$
9. $(-1)^{13} =$

Simplifique as expressões, supondo $\boldsymbol{a \cdot b \neq 0}$.

10. $(a^2 \cdot b^3)^2 \cdot (a^3 \cdot b^2)^3 =$
11. $\dfrac{(a^4 \cdot b^2)^3}{(a \cdot b^2)^2} =$
12. $\left(\dfrac{a^4 \cdot b^3}{a^2 \cdot b}\right)^5 =$

Calcule o valor das expressões:

13. $\dfrac{2^{-1} - (-2)^2 + (-2)^{-1}}{2^2 + 2^{-2}} =$
14. $\dfrac{\left(-\frac{1}{2}\right)^2 \cdot \left(\frac{1}{2}\right)^3}{\left[\left(-\frac{1}{2}\right)^2\right]^3} =$

Calcule:

15. $(0{,}25)^{-3} =$

16. $\dfrac{1}{(0{,}2)^{-2}} =$

17. $\dfrac{1}{(0{,}01)^{-2}} =$

Se $\boldsymbol{a \cdot b \neq 0}$, simplifique as expressões:

18. $(a^{-2} \cdot b^{3})^{-2} \cdot (a^{3} \cdot b^{-2})^{3} =$

19. $\left(\dfrac{a^{3} \cdot b^{-4}}{a^{-2} \cdot b^{2}}\right)^{3} =$

20. $\dfrac{(a^{3} \cdot b^{-2})^{-2} \cdot (a \cdot b^{-2})^{3}}{(a^{-1} \cdot b^{2})^{-3}} =$

Se $n \in \mathbb{Z}$ e $a \in \mathbb{R}^{*}$, simplifique as expressões:

21. $a^{2n+1} \cdot a^{1-n} \cdot a^{3-n} =$

22. $\dfrac{a^{2n+3} \cdot a^{n-1}}{a^{2(n-1)}} =$

23. $\dfrac{a^{2(n+1)} \cdot a^{3-n}}{a^{1-n}} =$

GABARITO:

1. 9
2. -9
3. -8
4. 8
5. 8/27
6. 1/81
7. 27/8
8. 1
9. -1
10. $a^{13} \cdot b^{12}$
11. $a^{10} \cdot b^{2}$
12. $a^{10} \cdot b^{10}$
13. -16/17
14. 2
15. 64
16. 1/25
17. 0,0001
18. $a^{13} \cdot b^{-12}$
19. $a^{15} \cdot b^{-18}$
20. $a^{-6}b^{4}$
21. a^{5}
22. a^{n+4}
23. a^{2n+4}