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Math_Questions_0018

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1. Multiply and simplify.

a) $3^{-6} \cdot 3^{-3}$ b) $(2a)^2 \cdot (2a)^6$

2. Divide and simplify.

a) $\frac{5^8}{5^4}$ b) $\frac{(4x)^6}{(4x)^6}$

For problems 3 - 6, simplify each of the expression.

3. a) $(x^2)^6$ b) $(-2y^3)^4$

4. a) $(3a^2b)^5$ b) $\left(\frac{a^2b^3}{c}\right)^5$

5. a) $(8x)^2(-x^3)^5$ b) $3(x^2)^3(-2x^4)^2$

6. a) $5x^6(-4x^2)^4$ b) $(2x)^4(-4x^2)^2$

7. a) Express using a positive exponent: 3^{-6} b) Express using a negative exponent: $\frac{1}{y^8}$

8. a) Convert to scientific notation: 3,800,000. b) Convert to decimal notation: 2×10^{-6}

9. Multiply or divide and write scientific notation for the answer.

a) $\frac{8.4\times10^{-2}}{2.4\times10^{5}}$ b) $(4.8\times10^{-6})(3.2\times10^{-4})$

10. There are 76 million residents who are to receive a mailing that cost 19.6 cents to send. How much will be spent sending the mailing? Express the answer in scientific notation.

11. Identify the coefficient of each term of the polynomial $\frac{2}{3}x^3 - 4x + 8$.

12. Identify the degree of each term and the degree of the polynomial: $4x^2 + 6x^3 - 9x + 1$

13. Evaluate the polynomial $2x^3 - x + 4$ for $x = -2$.

14. Collect like terms and then arrange in descending order:
$9 + 3x - 2x^2 - 5x + 4x^3 + 11x^2 - 6$

15. Add:
$(8x^5 - 2x^2 + 9) + (4x^5 - 3x^4 + 2x^3 + 7x^2 - x + 1)$

16. Add:
$\left(\frac{5}{8}x^2 - 4x + 1\right) + \left(-\frac{3}{8}x^2 + 9x - 6\right)$

17. Subtract: $(2x^4 + 6x^3 - 5x^2 + 4x - 3) - (4x^4 + 3x^2 + 10)$

18. Subtract:
$(x^4 - 4.1x^2 + 6) - (x^4 + 6.8x^3 - 3x^2 + 2)$

19. Multiply:
a) $(3x + 4)(3x - 4)$ b) $(2y + 3)(y - 6)$

20. Multiply:
a) $(x^7 - 3)(x^2 + 8)$ b) $(9 - y)(8 + 3y)$

21. Divide: $(28x^6 - 16x^3 + 12x^2) \div (4x^2)$

22. Divide: $(6x^4 - 5x^3 + x - 8) \div (2x - 3)$

23. Solve: $(x - 4)(x + 4) = (x + 3)^2$

24. The product of two polynomials is $y^5 - 32$.
One of the polynomials is $y - 2$.
Find the other polynomial.

25. The perimeter of a rectangle is 86 meters. The length is 12 meters greater than the width.
Find the length and the width.