Name _____

Exponents – Multiplication Rules and Negative Exponents

Write your answer using only positive exponents.

1. $5^3 =$ _____
2. $10^3 =$_____
3. $4x^{-6}y =$ _____
4. $8^1 \cdot 8^4 =$ _____
5. $7^2 \cdot 7^3 =$ _____
6. $x^5 \cdot x^4 =$ _____
7. $2^3 \cdot 2^4 =$ _____
8. $8^1 \cdot 8^3 =$ _____
9. $t^4 \cdot t^{-4} =$ _____
10. $x^5 \cdot x^9 =$ _____
11. $3^4 \cdot x^3 \cdot x^5 =$ _____
12. $(6x^2)(4x^2) =$ _____
13. $(3x^3y^{-2})(-6y^5) =$ _____
14. $(5p^3)(-m^8p^2) =$ _____
15. $(4f^9h^{-13})(-5f^6)(-3h^2) =$ _____
16. $\left(-2^2x^3y^4\right)\left((-3)^2x^4y^4\right) =$ _____
17. $(p^2)^5 =$ _____

18. $(x^m)^2$ = _____

19. $(2^3 x)^2$ = _____

20. $(2x)^2$ = _____

21. $(10^2)^3$ = _____

22. $(-3^2 x^6)^5$ = _____

23. $(7j^2)^3$ = _____

24. $(8n^2 p)^3$ = _____

25. $(3a^2)^3$ = _____

26. $(xy)^2 (x^2 y^2)^2$ = _____

27. $\left(\frac{8x^2}{2x^2}\right)^2$ = _____

28. $\left(\frac{3x}{2y^2}\right)^5$ = _____

29. $\left(\frac{3x}{4x^2}\right)^2$ = _____

30. $(16xy^{25})^0$ = _____

*Challenge: $(3x^a y^b z^c)(-y^f z^g)$

Exponents – Multiplication Rules and Negative Exponents Answers

Write your answer using only positive exponents.

1. $5^3 = 125$
2. $10^3 = 1{,}000$
3. $4x^{-6}y = \frac{4y}{x^6}$
4. $8^1 \cdot 8^4 = 8^5$
5. $7^2 \cdot 7^3 = 7^5$
6. $x^5 \cdot x^4 = x^9$
7. $2^3 \cdot 2^4 = 2^7$
8. $8^1 \cdot 8^3 = 8^4$
9. $t^4 \cdot t^{-4} = 1$
10. $x^5 \cdot x^9 = x^{14}$
11. $3^4 \cdot x^3 \cdot x^5 = 81x^8$
12. $(6x^2)(4x^2) = 24x^4$
13. $(3x^3y^{-2})(-6y^5) = -18x^3y^3$
14. $(5p^3)(-m^8p^2) = -5m^8p^5$
15. $(4f^9h^{-13})(-5f^6)(-3h^2) = \frac{60f^{15}}{h^{11}}$
16. $\left(-2^2x^3y^4\right)\left((-3)^2x^4y^4\right) = -36x^7y^8$
17. $(p^2)^5 = p^{10}$

18. $(x^m)^2 = x^{2m}$

19. $(2^3 x)^2 = 64x^2$

20. $(2x)^2 = 4x^2$

21. $(10^2)^3 = 1{,}000{,}000$

22. $(-3^2 x^6)^5 = -3^{10}x^{30} = -59{,}049x^{30}$

23. $(7j^2)^3 = 343j^6$

24. $(8n^2 p)^3 = 512n^6p^3$

25. $(3a^2)^3 = 27a^6$

26. $(xy)^2 (x^2y^2)^2 = x^6y^6$

27. $\left(\frac{8x^2}{2x^2}\right)^2 = 16$

28. $\left(\frac{3x}{2y^2}\right)^5 = \frac{243x^{10}}{32y^{10}}$

29. $\left(\frac{3x}{4x^2}\right)^2 = \frac{9}{16x^2}$

30. $(16xy^{25})^0 = 1$

*Challenge: $(3x^a y^b z^c)(-y^f z^g) = -3x^a y^{b+f} z^{c+g}$