Algebra Lesson 7-3A

What does x^4 mean?

$x \cdot x \cdot x \cdot x$

$4x$

What does x^3 mean?

$x \cdot x \cdot x$

How can we multiply x^4 x^3? $= x^?$

$x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x$

Due Tomorrow: 7-3A p.341 #1-21 odds

$$11^4 \cdot 11^3 = 11^{4+3} = 11^7$$

$$5^{-2} \cdot 5^2 = 5^{-2+2} = 5^0$$

$$= 1$$

The general rule:

When multiplying two exponents with the same base, the exponents get added.

Examples:

$3x^3 \cdot x^2 = 3 \cdot x^3 \cdot x^2 = 3x^5$

$6x \cdot 4x^3 = 6 \cdot x^1 \cdot 4 \cdot x^3 = 24x^4$

$5x^3 \cdot ax^3 = 5 \cdot a \cdot x^3 \cdot x^3 = 5ax^6$

$3x^2 \cdot 4y^3 = 12x^2y^3$

$2n^5 \cdot 3n^{-2}$

$6n^3$

$3x^{-5} \cdot 4x^{-2}$

$12x^{-5+(-2)}$

$12x^{-7}$

$\frac{12}{x^7}$

Rewrite each expression using each base only once.

1. $2^6 \cdot 2^4$

2. $5^{-13} \cdot 5^5 \cdot 2^2$

3. $10^{-6} \cdot 10^5 \cdot 10^1$

4. $(0.99)^3 \cdot (0.99)^0$

5. $6^6 \cdot 6^{-2} \cdot 6^5$

6. $(1.025)^2(1.025)^{-2}$

Simplify each expression.

7. $c^{-2} \cdot c^7$

8. $3r \cdot r^4$

9. $5t^{-2} \cdot 2t^{-5}$

10. $(7x^5)(8x)$

11. $3x^2 \cdot x^2$

12. $(-2.4n^4)(2n^{-1})$

13. $b^{-2} \cdot b^4 \cdot b$

14. $(-2m^3)(3.5m^{-3})$

15. $(15a^3)(-3a)$

16. $(x^5y^2)(x^{-6}y)$

17. $(5x^5)(3y^6)(3x^2)$

18. $(4c^4)(ac^3)(3a^5c)$

19. $x^6 \cdot y^2 \cdot x^4$

20. $a^6b^3 \cdot a^2b^{-2}$

21. $-m^2 \cdot 4r^3 \cdot 12r^{-4} \cdot 5m$