

Name _____

Date _____ Pd. _____

Notes: Multiplying Monomials Continued

Powers of Monomials An expression of the form $(x^m)^n$ is called a _____ and represents the product you obtain when x^m is used as a factor n times. To find the power of a power, _____ exponents.

| | |
|---------------------------|---|
| Power of a Power | For any number a and all integers m and n , $(a^m)^n =$ |
| Power of a Product | For any number a and all integers m and n , $(ab)^m =$ |

Example Simplify $(-2ab^2)^3(a^2)^4$.

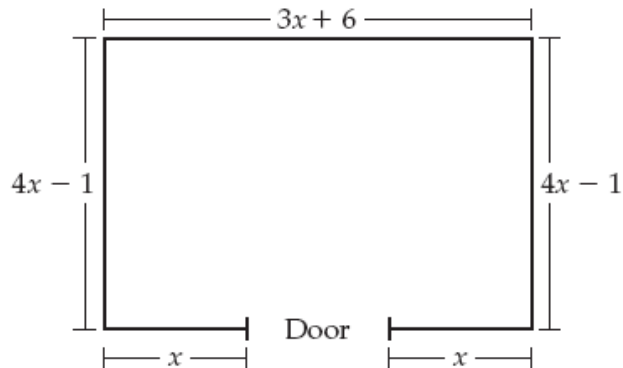
| Expression | Property | Expression Simplified |
|-----------------|---|-----------------------|
| $3^5 \cdot 3^2$ | Product of Powers Power of a Power Power of a Product | |
| $(a^3)^4$ | Product of Powers Power of a Power Power of a Product | |
| $(-4xy)^5$ | Product of Powers Power of a Power Power of a Product | |

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Exit Card: Multiplying Monomials Continued

A rectangular room is shown below.



Which expression represents the width of the door?

- A $(3x + 6) - x - x$
- B $(4x - 1) - x - x$
- C $(4x - 1) - (3x + 6)$
- D $(3x + 6) + (4x - 1) + (4x - 1) + x + x$

A rectangular rug is $x + 4$ feet wide and $2x + 1$ feet long. Which expression represents the area of the rug?

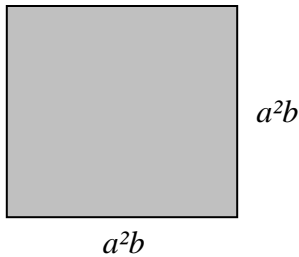
- F $(x + 4) + (2x + 1)$
- G $(x + 4) \times (2x + 1)$
- H $2(x + 4) + 2(2x + 1)$
- J $2(x + 4) \times (2x + 1)$

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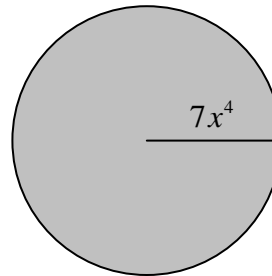
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Homework: Pages 413 – 415 (44 – 46, 51, 52, 59, 60)

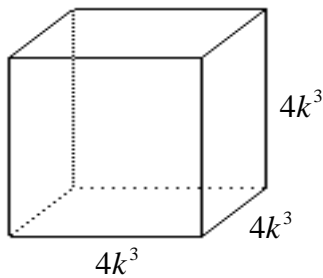
44. Express area as a monomial.



45. Express area as a monomial.



46. Express the volume of the cube as a monomial.



When a car hits an object, the damage is measured by the collision impact. For a certain car, the collision impact I is given by $I = 2s^2$, where s represents the speed in kilometers per minute.

51. What is the collision impact if the speed of the car is 1 kilometer per minute? 2 kilometers per minute? 4 kilometers per minute?

52. As the speed doubles, explain what happens to the collision impact.

59. $(4^2)(4^5) = ?$

A 16^7

B 8^7

C 4^{10}

D 4^7

60. Which of the following expressions represents the volume of the cube below?

A $15x^3$

B $25x^2$

C $25x^3$

D $125x^3$

