

#1-9: Simplify each expression so it is written as a monomial.

1)  $(3y^4)(7y^5)$

2)  $(-4rx^2t^3)(-6r^5x^2t)$

3)  $(3xy^2)^2$

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4)  $\frac{g^3h^5}{gh^2}$

5)  $\frac{k^7m^{10}p}{k^5m^3p}$

6)  $\frac{10x^5}{2x^2}$

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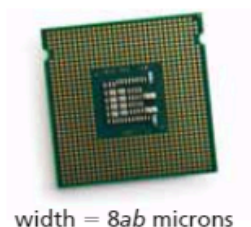
7)  $\frac{(3p^2)^3}{p^4}$

8)  $\left(\frac{3p^2}{q^2}\right)^3$

9)  $\left(\frac{4}{5}a^2\right)^2$

10) A triangle has a height of  $4a$  and a base of  $5ab^2$ . Express the area of the triangle as a monomial.

11) The area of this rectangular computer chip is  $112a^3b^2$  square microns. What is the length, if its width is  $8ab$  microns?



12) Describe and correct the error in each item.

a)

**X**  $2^4 \cdot 2^5 = (2 \cdot 2)^{4+5}$   
 $= 4^9$

b)

**X**  $\frac{x^5 \cdot x^3}{x^4} = \frac{x^8}{x^4}$   
 $= x^{8/4}$   
 $= x^2$

13) Jessie charges a family \$4 per hour to babysit, plus \$10 for a cab home when she leaves (which she secretly pockets and just walks home). Jessie needs at least \$40 more to buy a purse for which she is saving. Write an inequality for this situation. Will she be able to buy this purse if she babysits for 5 hours? Show your work.

14) Solve for  $d$ :  $n = 4x + 3d$

15) Solve for  $d$ :  $a = dx + 3dy$

*Check-in:*

**HW #44 – Laws of Exponents (D2)**  
MES21 | Fall 2016

**Name:** \_\_\_\_\_

**Period:** \_\_\_\_ **Row:** \_\_\_\_ **Date:** \_\_\_\_\_

#1-3: Evaluate each expression.

1)  $4^0$

2)  $\frac{(-8)^2}{3^{-4}}$

3)  $\frac{5^{-1}}{-9^0}$

#4-9: Simplify each expression. Use only positive exponents.

4)  $9x^0y^{-3}$

5)  $\frac{2^{-2}m^{-3}}{n^0}$

6)  $\frac{p^{-8}}{7^{-2}q^{-9}}$

7)  $\frac{2^2y^{-6}}{8^{-1}z^0x^{-7}}$

8)  $\frac{n^{-5}p^4}{r^{-2}}$

9)  $\frac{8v^{-3}wx^2}{2wx^5}$

#10-13: Simplify each expression. Write your answer using only positive exponents.

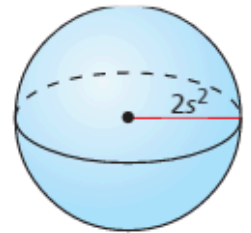
10)  $\left(\frac{6}{n}\right)^{-2}$

11)  $\left(\frac{1}{2r^6}\right)^{-6}$

12)  $\left(\frac{4s^5t^{-7}}{-2s^{-2}t^4}\right)^3$

13)  $\left(\frac{3x^3y^0}{x^{-2}}\right)^4 \cdot \left(\frac{y^2x^{-4}}{5xy^{-8}}\right)^3$

14) The formula for the volume of a sphere is  $V = \frac{4}{3}\pi r^3$ , where  $r$  is the radius of the sphere.  
Which of the following expressions represents the volume of the sphere, if the radius is  $2s^2$ ?



(1)  $\left(\frac{3s^2}{2^4\pi s^8}\right)^{-1}$

(3)  $(2^5\pi s^6)(3^{-1})$

(5)  $\frac{32\pi s^6}{3}$

(2)  $(2s)^5 \cdot \frac{\pi s}{3}$

(4)  $\left(\frac{3\pi s^6}{32}\right)^{-1}$

(6)  $\frac{32}{3}\pi s^5$

15) A rectangular prism has a width of  $7x^3$  units, a length of  $4x^2$  units, and a height of  $3x$  units.  
Express the volume of the prism as a monomial.

16) Solve the inequality and graph the solution on a number line.

$$8 + t \leq 3(t + 4) + 2$$

*Check-in:*