

Warm-up:

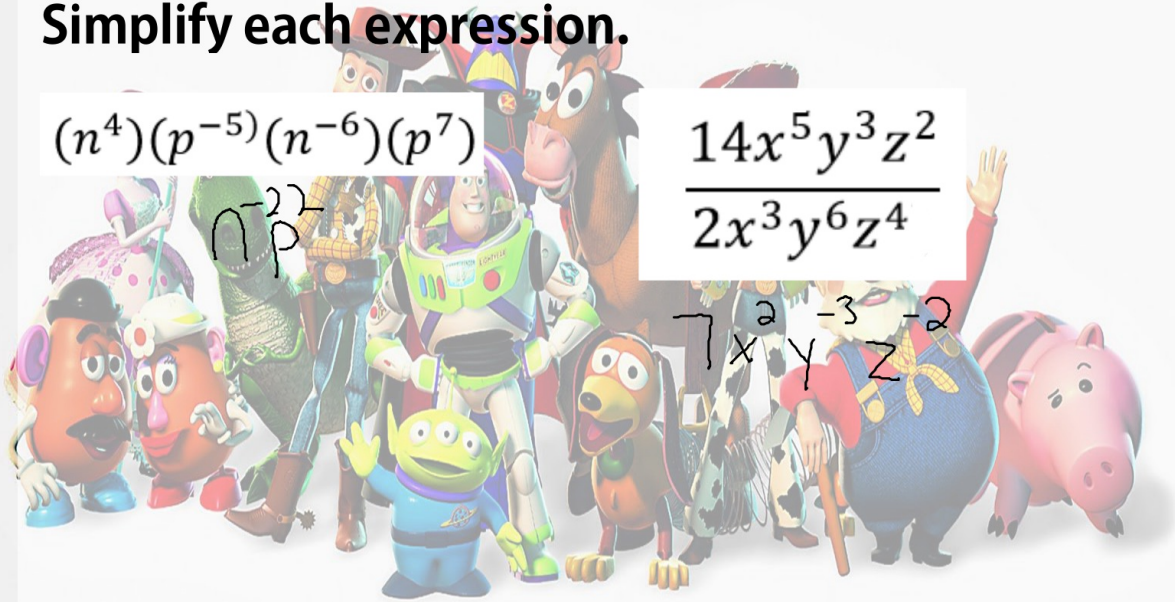
Simplify each expression.

$$(n^4)(p^{-5})(n^{-6})(p^7)$$

$$n^{-2}p^2$$

$$\frac{14x^5y^3z^2}{2x^3y^6z^4}$$

$$7x^2y^{-3}z^{-2}$$

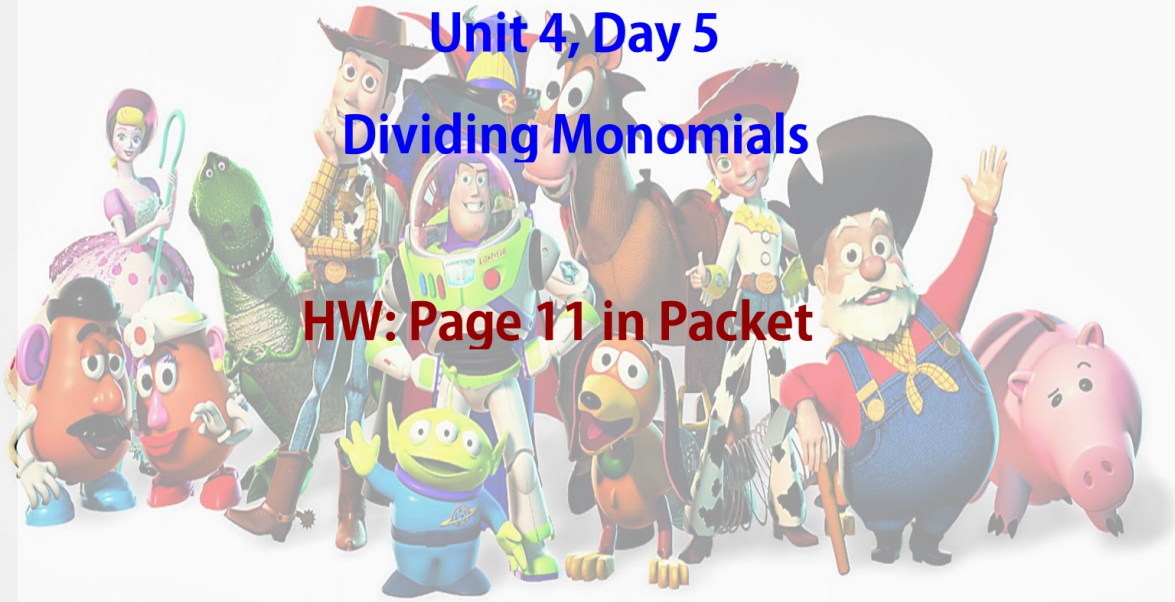


Algebra 1

Unit 4, Day 5

Dividing Monomials

HW: Page 11 in Packet



$$7) \left(\frac{4x^2y}{y}\right)^2$$

$$\frac{4^2 x^2 y^2}{y^2}$$

$$= 16x^2$$

$$8) \left(\frac{2a^2b^5}{2a^2b^7}\right)^4$$

$$\frac{2^4 a^{10} b^{20}}{2^4 a^8 b^{28}}$$

$$= a^2 b^{-8}$$

$$9) \left(\frac{c^4d^5}{3c^2d^2}\right)^3$$

$$\frac{c^{12}d^{15}}{3^3 c^6 d^6}$$

$$= \frac{1}{27} c^6 d^9 \text{ or } \frac{c^6 d^9}{27}$$

$$10) \left(\frac{2x^2y^3}{x^2y}\right)^5$$

$$\frac{2^5 x^{10} y^{15}}{x^{10} y^5}$$

$$= 32x^0 y^{10}$$

$$11) \left(\frac{f^4g^2}{fg^3}\right)^2$$

$$\frac{f^{12}g^{12}}{f^2g^6}$$

$$= f^{10}g^6$$

$$12) \left(\frac{4x^2y^3}{2x^2y^4}\right)^3$$

$$\frac{4^3 x^{12} y^{15}}{2^3 x^6 y^{12}}$$

$$= 32x^6 y^3$$

Dividing with Same Bases

Simplify each expression.

$$6 + 5 = 11$$

$$-5 - 4 = -9$$

$$-2 + 6 = 4$$

$$\frac{25a^6b^8c^2}{5a^4b^9c^6}$$

$$5a^2b^{-1}c^{-4}$$

$$\frac{5a^2}{b^{-1}c^{-4}}$$

$$\frac{6x^{-5}y^6z^{-2}}{8x^4y^{-5}z^{-6}}$$

$$\frac{3}{4} x^{-9} y^{11} z^4$$

$$\frac{3y^{11}z^4}{4x^9}$$

Dividing Exponents

$$\begin{aligned} -4 - 6 &= -10 \\ 6 - 8 &= -2 \\ 4 + 6 &= 10 \end{aligned}$$

$$\frac{(4x^2y^{-3}z^{-2})^{-2}}{(2x^3y^4z^{-3})^2}$$

$$\left(\frac{a^{-2}b^{-3}c^2}{a^3b^2c^{-2}}\right)^{-3}$$

$$\begin{array}{r} 16 \\ \hline 4x^2y^4z^4 \\ \hline 2x^6y^8z^{-6} \\ \hline 1 \\ \hline 64x^{-10}y^{-2}z^{10} \end{array}$$

$$a^{15}b^{15}c^{-12}$$

$$\frac{a^{15}b^{15}}{c^{12}}$$

$$\frac{12^{10}}{64x^{10}y^2}$$

Zero Power

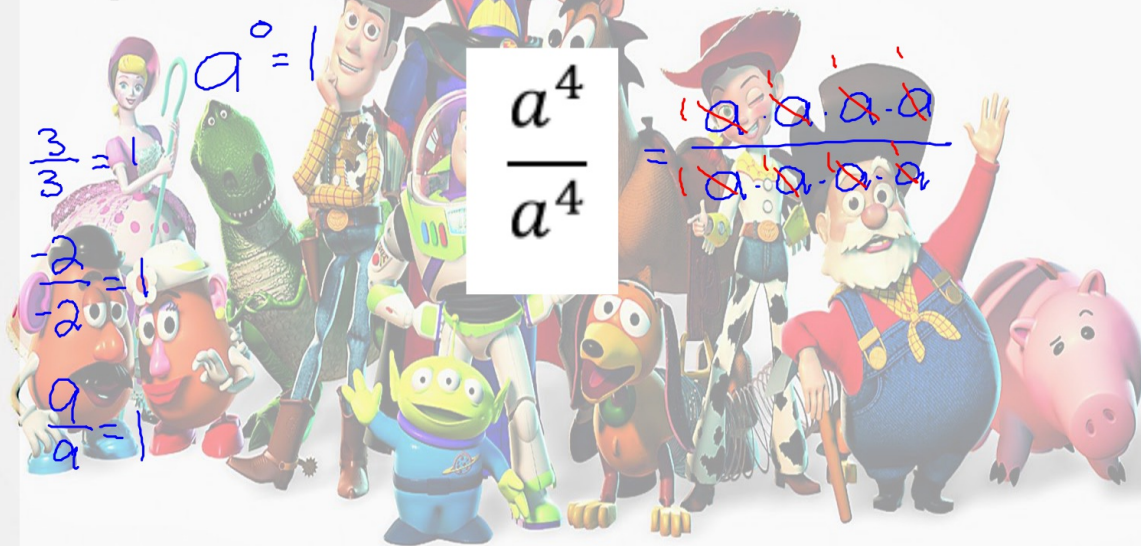
Any base to the zero power is 1.

$$\begin{aligned} \frac{3}{3} &= 1 \\ \frac{-2}{-2} &= 1 \\ \frac{9}{9} &= 1 \end{aligned}$$

$$a^0 = 1$$

$$\frac{a^4}{a^4}$$

$$\frac{\cancel{a} \cdot \cancel{a} \cdot \cancel{a} \cdot \cancel{a}}{\cancel{a} \cdot \cancel{a} \cdot \cancel{a} \cdot \cancel{a}}$$



Dividing Exponents

$$\begin{aligned} 3-4 &= -1 \\ 4-4 &= 0 \\ 6-3 &= 3 \end{aligned}$$

$$\frac{x^3 y^4 z^6}{x^4 y^4 z^3}$$

$$\begin{aligned} -3+3 &= 0 \\ 5-3 &= 2 \\ -6+9 &= 3 \end{aligned}$$

$$\frac{6a^{-3} b^5 c^{-6}}{30a^{-3} b^3 c^{-9}}$$

$$x^{-1} y^0 z^3$$

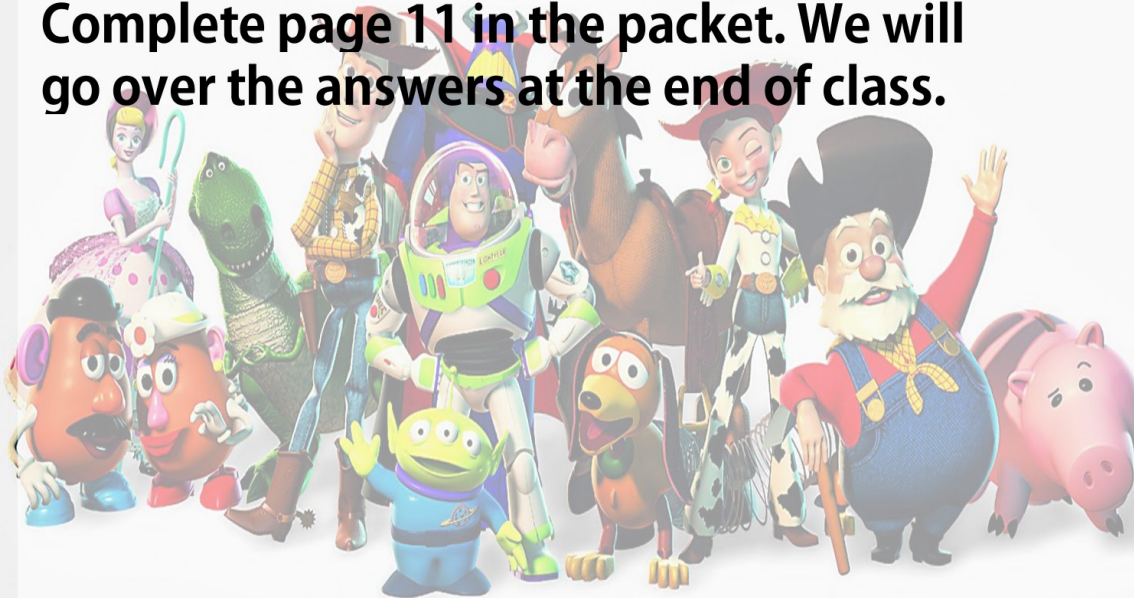
$$\frac{1z^3}{x^1} \text{ or } \frac{z^3}{x^1}$$

$$\frac{1}{5} a^0 b^2 c^3$$

$$\frac{1b^2 c^3}{5}$$

Classwork

Complete page 11 in the packet. We will go over the answers at the end of class.



Classwork

Simplify.

1) $\frac{-2a^7}{10a^6}$
 $-\frac{1}{5}a^{-6}$
 $\boxed{-\frac{1}{5a^6}}$

2) $\frac{15b}{45b^4}$
 $\frac{1}{3}b^{-4}$
 $\boxed{\frac{1}{3b^4}}$

3) $x^3y^0x^{-7}$
 $x^{-4} \cdot 1$
 $\boxed{\frac{1}{x^4}}$

4) $(n^2)(n^{-4})(n^{-5})$
 $n^{-7}p^{-4}$
 $\boxed{\frac{1}{n^7p^4}}$

5) 6^{-2}
 $\frac{1}{6^2}$
 $\boxed{\frac{1}{36}}$

6) $(\frac{4}{5})^{-2}$
 $\frac{4^{-2}}{5^{-2}} = \frac{5^2}{4^2}$
 $\boxed{\frac{25}{16}}$

7) $\frac{30h^{-2}k^{11}}{50k^{-3}}$
 $6h^{-3}k^{11}$
 $\boxed{\frac{6k^{11}}{h^3}}$

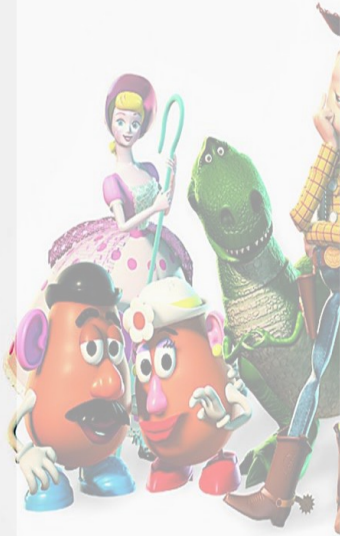
8) $\frac{18x^3y^2z^2}{-2x^2yz}$
 $-9x^1y^1z^1$
 $\boxed{-9xyz}$

9) $\frac{-10y^2z^4}{-2z^{12}}$
 $\frac{19}{3}z^{-12}$
 $\boxed{\frac{19}{3z^{12}}}$

10) $\frac{(5r^{-2})^{-2}}{(2r^3)^2}$
 $\frac{5^{-2}r^4}{2^2r^6}$
 $= \frac{1}{5^2 \cdot 2^2} r^{-2}$
 $\boxed{\frac{1}{100r^2}}$

11) $(\frac{r^{-2}t^3}{r^2})^0$
 $\boxed{1}$

12) $(\frac{2a^{-2}bc^{-1}}{3ab^{-2}})^{-3}$
 $\frac{2^{-3}a^6b^{-3}c^3}{3^{-3}a^{-3}b^6}$
 $\frac{3^3 a^9 b^{-9} c^3}{2^3 a^3 b^3}$
 $\boxed{\frac{27ac^3}{8b^3}}$



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