

# Algebra I

## Chapter 8 Mid-Chapter Review

Simplify:

$$a^2(a^3)(a^6)$$

$$a^{11}$$

$$(-4xy)^3(-2x^2)^3$$

$$(-64x^3y^3)(-8x^6)$$

$$512x^9y^3$$

$$(2x^3y^2z^2)^3(x^2z)^4$$

$$8x^9y^6z^6 \cdot x^8z^4$$

$$8x^{17}y^6z^{10}$$

Simplify. Assume that no denominator is equal to zero.

$$\frac{6^{15}}{6^9}$$

$$6^{15-9}$$

$$6^6$$

$$\textcircled{46,656}$$

$$\frac{y^8}{y^3}$$

$$y^{8-3}$$

$$\textcircled{y^5}$$

$$\frac{r^6 n^{-7}}{r^4 n^2}$$

$$\frac{r^6}{r^4} \cdot \frac{n^{-7}}{n^2}$$

$$r^2 \cdot n^{-9}$$

$$\textcircled{\frac{r^2}{n^9}}$$

$$\frac{(a^2 b^{-1})^3}{(a^3 b^2)^2}$$

$$\frac{a^6 b^{-3}}{a^6 b^4}$$

$$1 \cdot b^{-7}$$

$$\textcircled{\frac{1}{b^7}}$$

$$\frac{6f^{-2}g^3h^5}{54f^{-2}g^{-5}h^3}$$

$$\frac{6}{54} \cdot \frac{f^{-2}}{f^{-2}} \cdot \frac{g^3}{g^{-5}} \cdot \frac{h^5}{h^3}$$

$$\frac{1}{9} \cdot 1 \cdot g^8 \cdot h^2$$

$$\textcircled{\frac{g^8 h^2}{9}}$$

Express each number in scientific notation.

57,600

$$5.76 \times 10^4$$

0.0000061

$$6.1 \times 10^{-6}$$

Express each in standard notation.

$6.4871 \times 10^{-3}$

0.0064871

$3.002 \times 10^5$

300,200

Evaluate. Express each result in scientific and standard notation.

$$\frac{7.2 \times 10^{-5}}{4.5 \times 10^2}$$

$$\frac{7.2}{4.5} \cdot \frac{10^{-5}}{10^2}$$

$$1.6 \times 10^{-7}$$

0.00000016

$$(3.5 \times 10^6)(8.2 \times 10^3)$$

$$28.7 \times 10^9$$

$$2.87 \times 10^1 \times 10^9$$

$$2.87 \times 10^{10}$$

28,700,000,000

Find the degree of each polynomial.

$$5a - 2b^2 + 1$$

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ 1 & 2 & 0 \end{array}$$

$$\textcircled{2}$$

$$24xy - xy^3 + x^2$$

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ 2 & 4 & 2 \end{array}$$

$$\textcircled{4}$$

$$9abc + bc - d^5$$

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ 3 & 2 & 5 \end{array}$$

$$\textcircled{5}$$

Arrange the terms of each polynomial so that the powers of  $x$  are in descending order.

$$7a^2x^2 + 17 - a^3x^3 + 2ax$$

$$\begin{array}{cccc} \downarrow & \downarrow & \downarrow & \downarrow \\ 2 & 0 & 3 & 1 \end{array}$$

$$12rx^3 + 9r^6 + r^2x + 8x^6$$

$$8x^6 + 12rx^3 + r^2x + 9r^6$$

$$\textcircled{-a^3x^3 + 7a^2x^2 + 2ax + 17}$$

# Assignment

Chapter 8 Mid-Chapter Test  
Monday