

Lesson 5.1 & 5.2 Review Worksheet

Name: _____

Evaluate the expression. Write your answer using exponents and as a simplified fraction. NO DECIMALS.

1.) $(-7)^2(-7)$

2.) $4^{-6} \cdot 4^{-1}$

3.) $(5^{-2})^2$

4.) $\frac{4^{-7}}{4^{-3}}$

5.) $\frac{8^{-4}}{8^2}$

6.) $\left(\frac{4}{5}\right)^{-3}$

Simplify the expression. Evaluate all powers with numerical bases. NO DECIMALS.

7.) $\frac{y^4}{y^{-7}}$

8.) $(3^2s^3)^6$

9.) $(4^0w^2)^{-5}$

10.) $(2m^{-3}n^{-1})(8m^4n^{-2})$

11.) $(7c^7d^2)^{-2}$

12.) $\frac{x^5y^{-8}}{x^5y^{-6}}$

$$13.) \frac{16q^0r^{-6}}{4q^{-3}r^{-7}}$$

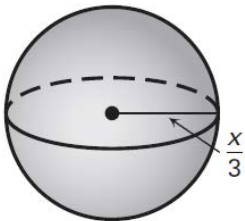
$$14.) \frac{12a^{-3}b^9}{21a^2b^{-5}}$$

$$15.) \left(\frac{x^4}{y}\right)^2 \cdot \frac{3y^2}{8x^8}$$

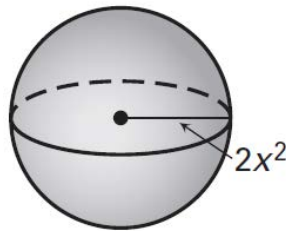
$$16.) \left(\frac{6y^{-2}}{x^4}\right)^{-3} \cdot \frac{8y^3x^{-1}}{y^{-5}x^8}$$

Write an expression for the figure's area or volume in terms of x .

$$17.) S = 4\pi r^2$$



$$18.) V = \frac{4}{3}\pi r^3$$



Decide whether the function is a polynomial function. If so, write it in standard form and state its degree, type, and leading coefficient. If it is not a polynomial, explain why.

$$19.) f(x) = 4x + x^2\sqrt{11} - x^3 + \sqrt{2}$$

$$20.) h(x) = -5x^3 - 9x^5 + 21^a$$

$$21.) g(x) = -6.25x - 4x^2 + \frac{2}{3}x^3 - 10x^4$$

$$22.) j(x) = x^4 + 12x^3 - 4x^2 + x^{1.25}$$

Use direct substitution to evaluate the polynomial function for the given value of x .

$$23.) f(x) = 6x^4 - x^3 + 3x^2 - 5x + 9; x = -1$$

$$24.) g(x) = 7x - x^4 + 1; x = -4$$

Use synthetic substitution to evaluate the polynomial function for the given value of x .

$$25.) f(x) = 7x^4 - 3x^3 + x^2 + 5x - 9; x = 2$$

$$26.) f(x) = x^3 - 8x + 6; x = -3$$

$$27.) h(x) = x^4 + 3x - 20; x = 4$$

$$28.) f(x) = -3x^5 + 6x^3 - x; x = -4$$

Describe the end behavior of the graph of the polynomial function by completing the statements. (Hint: Sketch a general picture of the graph to help).

29.) $f(x) = -5x^3$

$f(x) \rightarrow \underline{\hspace{2cm}}$ as $x \rightarrow -\infty$

$f(x) \rightarrow \underline{\hspace{2cm}}$ as $x \rightarrow +\infty$

30.) $f(x) = 2x^5 - 7x^2 - 4x$

$f(x) \rightarrow \underline{\hspace{2cm}}$ as $x \rightarrow -\infty$

$f(x) \rightarrow \underline{\hspace{2cm}}$ as $x \rightarrow +\infty$

31.) $f(x) = 2x^8 + 9x^7 + 10$

$f(x) \rightarrow \underline{\hspace{2cm}}$ as $x \rightarrow -\infty$

$f(x) \rightarrow \underline{\hspace{2cm}}$ as $x \rightarrow +\infty$

32.) $f(x) = -12x^6 - 2x + 5$

$f(x) \rightarrow \underline{\hspace{2cm}}$ as $x \rightarrow -\infty$

$f(x) \rightarrow \underline{\hspace{2cm}}$ as $x \rightarrow +\infty$