

Practice Test

9.

Identify the degree of each

$$\underline{x^4} - 7x + \underline{x^8} - 3x^5$$

4 1 8 5

↑

8

8.

Express using a positive exponent.

$$\frac{1}{y^{-5}} = y^5$$

$$\frac{1}{y^{-5}} = \frac{1}{\frac{1}{y^5}} = \frac{1}{1} \cdot \frac{y^5}{1}$$

$$1. 2^0 = 1 \quad \left(\frac{2x^2y^3z^{17}}{16x^4y^7w^{42}} \right)^0 = 1$$

$$7. \left(\frac{x}{w} \right)^{-2} = \left(\frac{w}{x} \right)^2 = \frac{w^2}{x^2}$$

$$6. -6^{-2} = -\frac{1}{6^2} = -\frac{1}{36}$$

$$5. (-2)^{-3} = \frac{1}{(-2)^3} = \frac{1}{-8} = -\frac{1}{8}$$

12.

Arrange the polynomial in descending order.
coefficient.

$$\underbrace{x^5}_{\text{blue}} + \underbrace{x}_{\text{orange}} + \underbrace{2x^3}_{\text{green}} + \underbrace{5}_{\text{teal}} + \underbrace{6x^2}_{\text{purple}}$$

$$x^5 + 2x^3 + 6x^2 + x + 5$$

leading coefficient: 1

22.

Subtract the polynomials.

$$(-3a^3 - 11a^2 + 9a + 6) - (-3a^3 + 6a^2 + 13a - 4)$$

$$\underbrace{-3a^3}_{\text{blue}} - \underbrace{11a^2}_{\text{green}} + \underbrace{9a}_{\text{purple}} + \underbrace{6}_{\text{orange}} \quad \underbrace{+3a^3}_{\text{blue}} - \underbrace{6a^2}_{\text{green}} - \underbrace{13a}_{\text{purple}} + \underbrace{4}_{\text{orange}}$$

$$-17a^2 - 4a + 10$$

19.

Add, and if possible, simplify the expression.

$$\underline{(-6x^4y^3 + 7x^3y^2 - 4xy^2)} + \underline{(2x^3y^3 - 3x^3y^2 - 7xy)}$$

$$-6x^4y^3 + 2x^3y^3 + 4x^3y^2 - 4xy^2 - 7xy$$

34.

Simplify the expression.

$$\left(\frac{1}{4} s^4 t \right)^2$$

$$\frac{1^2}{4^2} s^8 t^2$$

$$\frac{1}{16} s^8 t^2$$

37.

Multiply the polynomial by the monomial.

$$\frac{1}{6}m(\underline{2m} - \underline{5n})$$

$$\frac{2}{6}m^2 - \frac{5}{6}mn$$

$$\frac{1}{3}m^2 - \frac{5}{6}m$$

35.

Simplify.

$$\left(-\frac{1}{4}ab^3c^2\right)^5\left(-\frac{1}{4}ab^3c^2\right)^2$$

$$\left(-\frac{1}{4}ab^3c^2\right)^7 = -\frac{1}{4^7}a^7b^{21}c^{14}$$

39.

Multiply the polynomial by the monomial.

$$4b\left(b^5 - \frac{1}{8}b^3 - \frac{1}{12}b^2 - \frac{1}{20}b - 5\right)$$

$$4b^6 - \frac{1}{2}b^4 - \frac{1}{3}b^3 - \frac{1}{5}b^2 - 20b$$

13.

Collect like terms and then arrange them in descending order.

$$\underbrace{7x^5} - \underbrace{3x^7} - \underbrace{6x^5} + \underbrace{4x^7}$$

$$x^7 + x^5$$

46.

Determine the conjugate of the binomial
 $-9x + 2y$.

$$-9x - 2y$$

47.

Find the product.

$$(q+3)(q-3)$$

$$q^2 - 3q + 3q - 9 = q^2 - 9$$

50.

Multiply.

$$(x + 12)^2$$

$$(x + 12)(x + 12)$$

$$x^2 + 12x + 12x + 144$$

$$x^2 + 24x + 144$$

54.

Simplify. Write your answer with a positive exponent.

$$\frac{p^{-7}}{p^6} = p^{-7-6} = p^{-13} = \frac{1}{p^{13}}$$

$$\frac{1}{p^{6-(-7)}}$$

53.

Divide and simplify.

$$\frac{5^2}{5^9} = \frac{1}{5^{9-2}} = \frac{1}{5^7}$$

57.

Divide and simplify.

$$\frac{12x^7}{6x^2} = 2x^5$$

58.

Simplify the expression.

$$\frac{15u^4v^3}{-3uv} = -5u^3v^2$$

|62.

Divide and check.

$$\begin{array}{r} \overline{30x^7 - 25x^3 + 25x} \\ 5x \end{array}$$

$$6x^6 - 5x^2 + 5$$

$$\begin{array}{l} 2. \quad -6^4 \\ -6 \cdot 6 \cdot 6 \cdot 6 \end{array}$$

$$\begin{array}{l} (-6)^4 \\ (-6)(-6)(-6)(-6) \end{array}$$