Degree of an algebraic expression

A. Choose the correct answer:

1. What is the degree of the term $7x^3y^2$?

a) 3 b) 5

c) 2 d) 6

2. The degree of the expression $4x^2 + 3x + 7$ is

a) 1 b) 2

c) 3 d) 0

3. Which of the following expressions has a degree of 4?

a) $x^4 + x^2$ b) $x + x^3$

c) $x^2 + x$ d) $x^3 + x^4 + x$

4. The degree of a constant term is always

a) 0 b) 1

c) undefined d) –1

5. In the expression $5xy^2 – 3x^2y + 8$, the degree is

a) 1 b) 2

c) 3 d) 0

B. Write the Missing Terms to Complete the Sentences:

1. The degree of a monomial is the sum of powers of its _____.
2. The degree of $9x^2y$ is _____.
3. In the expression $x^4 + 2x^2 + 7$, the highest power of the variable is _____.
4. The degree of a constant term like 6 is _____.
5. The degree of the term $4a^3b^2c$ is _____.

C. Mark each sentence with a True (✔) or False (✗):

1. The degree of 0 is 0. _____
2. The degree of $3x^2y^3$ is 6. _____
3. The highest power of a variable in any expression is called its degree._____

4. An expression with only constants has a degree of 1. _____
5. Degree of a polynomial is always equal to the sum of all powers in the expression. _____

D. Figure out the answers to these questions:

1. Write any two expressions with degree 3 and explain how you identified the degree.
2. Find the degree of each term in the expression $2x^3y - 4xy^2 + 5$.
3. Which term has the highest degree in the expression $3x^2 + 4xy + 7y^2$?
4. Create an algebraic expression having three terms with different degrees.
5. From the expression $2a^2b + 3ab^2 - ab$, find the degree of each term and the overall degree.

E. Challenge yourself with these questions:

1. Write an expression with degree 5 using three different variables.
2. Identify the degree of each term in the expression $4m^2n + 6mn^2 - 8$.
3. Make a table of terms and their degrees: x^3y, x^2y^2, xyz.
4. Take any 4 terms and arrange them in increasing order of their degrees.
5. From the expression $x^4 + 2x^3 + x^2 + x + 1$, identify which term determines the degree and why?