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Adding Polynomials

$$x = \text{👥} \qquad\qquad y = \text{⛰} + \text{🏠}$$

$$\text{⛰}\ y_1 = \tfrac{1}{2}x^2 + 3x + 5$$

$$\text{🏠}\ y_2 = 3x^2 - 3x + 4$$

$$y_1 + y_2 = 3\tfrac{1}{2}x^2 \qquad + 9$$

1 **Determine the degrees of the monomials.**

2 Find out how much space the tents and the stage take up by adding the polynomials.

3 Identify the degrees of the given monomials.

4 Calculate the total space needed for the birthday party by adding the two polynomials.

5 Simplify the given polynomials by combining all like monomials.

+ with lots of tips, answer keys, and detailed answer explanations for all of the problems.
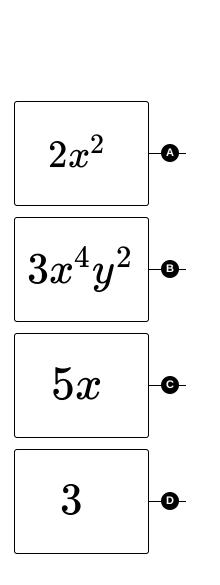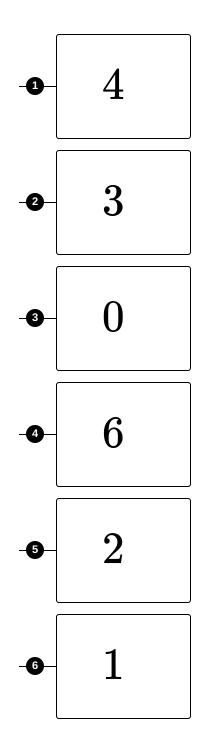
⚠ The complete package, **including all problems, hints, answers, and detailed answer explanations** is available for all sofatutor.com subscribers.

Determine the degrees of the monomials.

Match the monomial with the appropriate degree.

1   4

$2x^2$ **A**

2   3

$3x^4y^2$ **B**

3   0

$5x$ **C**

4   6

3 **D**

5   2

6   1

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Hints for solving these problems

$\boxed{\begin{smallmatrix}1\\ \text{of 5}\end{smallmatrix}}$ Determine the degrees of the monomials.

Hint #1

Remember that sometimes terms have hidden variables and/or exponents, like $x^0 = 1$ and $x^1 = x$.

Hint #2

For each monomial with more than one variable, the exponents are added:

The degree of $12xy^3$ can be found by adding the exponents of x and y: $1 + 3 = 4$.

Answers and detailed answer explanations for these problems

Determine the degrees of the monomials.

Answer key: A—5 // B—4 // C—6 // D—3

The degree of any polynomial is the highest degree monomial in the polynomial.

If we have a monomial with more than one variable, we add the exponents to determine its degree.

Remember, $x = x^1$ and $x^0 = 1$, so for example, $3x = 3x^1$; therefore, its degree is 1. Additionally, in $4 = 4x^0$, the degree is 0.

So we have the following degrees:
1. The monomial $2x^2$ has the degree 2.
2. The monomial $3x^4y^2$ has the degree $4 + 2 = 6$.
3. The monomial $5x = 5x^1$ has the degree 1.
4. The monomial $3 = 3x^0$ has the degree 0.

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