Adding Polynomials of Multiple Variables

Adding polynomials of multiple variables is very similar to adding polynomials of a single variable. But, with more than one variable, we have to be careful that both the variables and the exponents on the variables match exactly. For example:

xy^2, x^2y, x^2y^2 and xy must all be treated as separate, unique terms. However, as long as two terms have the same variables and each variable has the same exponent, they can be combined. So, xy^2 is the same as y^2x.

The first problem below is done for you:

Example:

$$(2x^2y + xz - 3z^2x) + (-x^2y^2 + 2xz)$$
$$= 2x^2y + 3xz - 3z^2x - x^2y^2$$

Notice that I can't combine the $2x^2y$ term with the $-x^2y^2$ term since the first contains a y but the second contains a y^2.

Now, try these questions on your own:

1. $(xz + 5x^2z - x) + (x + 5z) =$

2. $(z + x) + (zx + z^2x) =$

3. $(a + 5ba) + (3ab + a^2) =$

4. $(3xyz + zx - yxz) + (zyx + 1) =$

5. $(a + a^2b + b^2a) + (2ab + 4ba) =$

6. $(ka - 2k^2) + (3k^2 + ak^2) =$

7. $(-2mat + 5ma) + (2amt - a) =$

8. $(-2a - 2b) + (a + a^2b) + (2a^2b - 1) =$

9. $(-7a^7b + 2c^2) + (c + c^2 + b^7a) =$

10. $(4a^2b^3 - 2ab + b) + (b^3a^3 + 3ba - a) =$

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