***Polynomials and Collecting Like Terms***

A **term** is the product of a **coefficient** and **variable** part
 $Type equation here.$

*EX/ 3x 5x2 11 –1x 5ab*

A **polynomial** is a collection of one or more terms joined by addition or subtraction

*EX/* 5x22x + (–1) 3x2 + (–2x) + 1 a + (–2b) + c 54x3y2 + (–3x4y1)

BEWARE THE INVISIBLE 1!!!

x 🡪 1x –x 🡪 –1x (x + 4) 🡪 1(x + 4) – (x – 3) 🡪 –1(x – 3)

BE AWARE OF DIFFERENT STYLES THAT MEAN THE SAME THING

–1 🡨🡪 +(–1) –x 🡨🡪 +(–x) –4x 🡨🡪 +(–4x)

**Like terms** have identical variable parts. **Unlike terms** have different variable parts.

EX/ Which of the following are “like terms”?

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5x | 7xy | ***–***3x | 3.2 | 11x2 | x | ***–***4x2 | 3x3 | -3xy | x2 |

***Collecting like terms means grouping (by addition or subtraction) the like terms.
Only add/subtract the coefficients, do not change the variables.***

EX/ Collect the like terms. Use algebra tiles to represent the solution.

1. 2x + 3x

1. 4x + (–1x)
2. 2x + 1 + (–3) + (–3x)
3. $2x^{2}+x^{2}-4x^{2}$
4. $-x^{2}+2x-2x^{2}-4x$
5. $4c-2c+3+c$
6. $4c+\left(-1\right)+\left(-2c\right)+4$
7. $4t^{2}+2+\left(-2t\right)+t^{2}+3t-1$
8. 3d + (– 2) + (–1d) + (–2d)

1. 3 – 2c + 2c2 – c2 + c + 1
2. 2x + 2 + 2x + 3 – 4x – 2
3. $-3w+1+2w^{2}+5w-3$
4. $-3r-2r+r^{2}+r-3r^{2}$
5. $\left(-3y\right)+\left(-y^{2}\right)-4+y+3y^{2}$

EX/ Collect the like terms without algebra tiles.

1. 7m + 5m
2. 3u + 2v + (–u) + (–6v)
3. – x – 8y + 6x + 11 – 4y
4. $2x^{3}+3x^{4}+5x^{3}-5x^{4}$
5. 
6. 
7. $\left(-3xy\right)+\left(-2xy\right)+xy$
8. $2x^{2}y+3xy^{2}-1xy^{2}-4x^{2}y$
9. –3r2 + (–4pr) + 4p2 + (–7pr) + r2 + (–5p2)
10. $-2r+4x^{2}+3x-1r^{2}+\left(-3r\right)+\left(-x^{2}\right)+r-4x$