

# Finding the Greatest Common Factor of Polynomials

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Find the largest integer that will divide all the terms.

5.  $9x$  and  $45$

6.  $7x^2$  and  $21x$

7.  $18x^6$  and  $12x^3$

8.  $15x^3$ ,  $25x^2$ , and  $55x$

Find the largest degree of  $x$  that can be factored out of all the terms.

9.  $9x$  and  $45$

10.  $7x^2$  and  $21x$

11.  $18x^6$  and  $12x^3$

12.  $15x^3$ ,  $25x^2$ , and  $55x$

Factor the polynomials.

13.  $9x + 45 =$

14.  $7x^2 - 21x =$

15.  $18x^6 + 12x^3 =$

16.  $15x^3 - 25x^2 + 55x =$

To factor polynomials, find the greatest common factor (GCF) of the coefficients and factor it out- divide each term by the GCF. Then find the greatest common factor (GCF) of the variables by finding the lowest power of each variable that will divide all terms and factor it out- divide each term by GCF. Move the GCF to the outside and write in parenthesis what is remaining, after you factor out the GCF.

Factor each of the following polynomials.

17.  $6x^2 - 24x$

18.  $14x^2 - 35x$

19.  $5x^2 + x$

20.  $20x^2 + 44x$

21.  $17x^2 + 51x$

22.  $36x^3 + 63x^2 - 27x$

23.  $3x^4y^2 + 15x^3y^3$

24.  $20y^4 - 15y^3 + 30y^2$

25.  $9x^7y^5 - 3x^2y^6$

If the leading coefficient is negative, always factor out the negative!

26.  $-2m^4 + 14m^2 - 6m$

27.  $-5x^2y + 35xy$

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