

**FACTORING AND SIMPLIFYING POLYNOMIALS
ANSWERS**

Factor out the greatest common factor.

1. $x^2(6x+7x^2-3)$
2. $x^2(x^4-x+1)$
3. $x(x^2-5x+1)$
4. $5x(2x^3-6x+5)$
5. $a(b+c+d)$
6. $4b(-a+4c+5)$
7. $12x(x^2-4x+6)$
8. $2xy(1+2x-3y^2)$
9. $(x-3)(7+9y)$
10. $(y-7)(x^2-y^3)$

Factor

11. $(3x-5)(x^2+4x)$
12. $(3x^3-2x)(x-4)$
13. $x^2(x+3)+4(x+3)=(x^2+4)(x+3)$
14. $ab(a+2)-3(a+2)=(ab-3)(a+2)$
15. $(x+6)(x+1)$
16. $(x-6)(x+1)$
17. $(x-3)(x-1)$
18. $(x+7)(x+1)$
19. $(x+9)(x+4)$
20. $(x+13)(x-1)$
21. $(x-3)(x-3)$
22. $-x(x^2-4x-32)=-x(x-8)(x+4)$
23. $(x+5)(x-5)$
24. $(x-4)(x+4)$
25. $(x-3)(x+3)$

Simplify

26. $\frac{1}{3x}$
27. $\frac{x}{3y}$
28. $\frac{x(1-2x^2)}{4(x^2+2)} = \frac{x-2x^3}{4x^2+8}$
29. $\frac{2x(2+3x)}{3(x^3+4)} = \frac{4x-6x^2}{3x^3+12}$
30. $\frac{(x-3)}{(x+3)}$
31. $\frac{3}{x+5}$
32. $\frac{x+4}{x-8}$
33. $\frac{4}{15x}$
34. $\frac{x+10}{x+9}$
35. $\frac{x+5}{x(x+3)}$
36. $\frac{y^3-3x^4z^5}{2x(3z^7+2xy^6)}$
37. $\frac{x+4}{x-4}$
38. $\frac{x-4}{x+3}$
39. $\frac{x-4}{x+3}$
40. $\frac{x+8}{x+7}$
41. $\frac{x-4}{x+4}$
42. $\frac{1}{(x+4)(x-3)} = \frac{1}{x^2+2-12}$
43. $\frac{x+3y}{x+y}$
44. cannot further simplify
45. $\frac{5x+2}{4y}$