

Factor completely. If the polynomial is not factorable, write *prime*.

1. $a^3 - 216$

$$(a-6)(a^2+6a+36)$$

2. $x^4 - 7x^2 - 18$

$$(x+3)(x-3)(x^2+2)$$

3. $m^2 - 13m - 48$

$$(m-16)(m+3)$$

4. $10x^2 - 27x + 5$

$$(2x-5)(5x-1)$$

5. $2x^2 - 8$

$$2(x+2)(x-2)$$

6. $-2y^2 - 24y - 54$

$$-2(y+9)(y+3)$$

7. $12r^2 - 6 - r$

$$(4r-3)(3r+2)$$

8. $6z^3 + 33z^2 + 42z$

$$3z(2z+7)(z+2)$$

9. $5x^3 + 15x^2 - 2x - 6$

$$(5x^2-2)(x+3)$$

10. $2y^5 - 32y^3 - 4y^2 + 64$

$$2(y^3-2)(y+4)(y-4)$$

11. $7a^4 + 14a^3 - 10a - 20$

$$(7a^3-10)(a+2)$$

12. $8p^2 - 37p - 15$

$$(p-5)(8p+3)$$

13. $27x^3 + 8$

$$(3x+2)(9x^2-6x+4)$$

14. $35x^3y - 42xy^2$

$$7xy(5x^2-6y)$$

15. $x^2 - 17x + 60$

$$(x-12)(x-5)$$

16. $4y^2 + 9$

Prime

17. $2y^{2/3} - 5y^{1/3} - 42$

$$(y^{1/3}-6)(y^{1/3}+7)$$

18. $2y^3 - 7y^2z - 4yz^2$

$$y(y-4z)(2y+z)$$

Factor completely. If the polynomial is not factorable, write *prime*.

1. $-15x^2 - 5x$

$$-5x(3x+1)$$

2. $m^2 - 6m + 8$

$$(m-4)(m-2)$$

3. $x^2 + xy + 3x$

$$x(x+y+3)$$

4. $y^2 - 3y - 10$

$$(y-5)(y+2)$$

5. $a^2 + 5a + 6$

$$(a+3)(a+2)$$

6. $2x^2 - 48$

$$2(x^2 - 24)$$

7. $w^2 + 10w + 9$

$$(w+9)(w+1)$$

8. $x^2 + 9x - 13$

Prime

9. $10a^3b - 12a^2b^2$

$$2a^2b(5a-6b)$$

10. $y^2 - 12y + 20$

$$(y-2)(y-10)$$

11. $16n^2 + 25m^2$

Prime

12. $x^2 - 5x + 4$

$$(x+4)(x-1)$$

13. $x^2 - 12x - 28$

$$(x-14)(x+2)$$

14. $5n^4m^3 + 20n^2m^2 - 35nm^2$

$$5nm^2(n^3m + 4n - 7)$$

15. $y^2 + 19y + 48$

$$(y+3)(y+16)$$