

Factoring Polynomials 3  
Algebra 2

(KEY)

Factor. (Special cases)

1)  $z^2 - 25$

$(z - 5)(z + 5)$

2)  $p^3 - 512$

$(p - 8)(p^2 + 8p + 64)$

3)  $c^2 + 22c + 121$

$(c + 11)^2$   
Or  
 $(c + 11)(c + 11)$

4)  $y^3 + 729$

$(y + 9)(y^2 + 9y + 81)$

5)  $9x^2 + 100$

Prime

6)  $4d^2 - 20d + 25$

$(2d - 5)^2$   
Or  
 $(2d - 5)(2d - 5)$

Factor.

7)  $5x^2 + 17x + 6$

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

8)  $2t^2 - 9t - 35$

$(2t + 5)(t - 7)$

9)  $6x^2 - x - 12$

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

10)  $3q^2 + 2q - 5$

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

11)  $4v^2 + 12v - 7$

$(2v - 1)(2v + 7)$

12)  $7k^2 + 9k + 2$

$(7k + 2)(k + 1)$

Factor completely.

13)  $3g^2 + 24g + 48$

$3(q + 4)^2$   
Or  
 $3(q + 4)(q + 4)$

14)  $5x^2 - 180$

$5(x + 6)(x - 6)$

15)  $2y^3 - 54$

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

16)  $81w^3 + 192$

$3(3w + 4)(9w^2 - 12w + 16)$

17)  $10a^2 + 25a - 35$

$5(2a + 7)(a - 1)$

18)  $24m^2 - 30m + 3$

$3(8m^2 - 10m + 1)$

19)  $16r^2 - 48r + 36$

$4(2r - 3)^2$   
Or  
 $4(2r - 3)(2r - 3)$

20)  $45z^2 - 500$

$5(3z - 10)(3z + 10)$

21)  $12v^2 - 75v - 63$

$3(4v + 3)(v - 7)$