

Factoring Special Cases

Factor each completely.

1) $16n^2 - 9$

$$(4n-3)(4n+3)$$

2) $4m^2 - 25$

$$(2m+5)(2m-5)$$

3) $16b^2 - 40b + 25$

$$4b \quad 5$$

$$(4b-5)^2$$

4) $4x^2 - 4x + 1$

$$2x \quad 1$$

$$(2x-1)^2$$

5) $9x^2 - 1$

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

6) $n^2 - 25$

$$(n+5)(n-5)$$

7) $n^4 - 100$

$$(n^2+10)(n^2-10)$$

8) $a^4 - 9$

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

9) $k^4 - 36$

$$(k^2-6)(k^2+6)$$

10) $n^4 - 49$

$$(n^2-7)(n^2+7)$$

11) $98n^2 - 200$

$2(49n^2 - 100)$

$2(7n+10)(7n-10)$

13) $400 - 36v^2$

$4(100 - 9v^2)$

$4(10+3v)(10-3v)$

15) $10n^2 + 100n + 250$

$10(n^2 + 10n + 25)$

$n \quad 5$

$10(n+5)^2$

17) $49x^2 - 100$

$(7x-10)(7x+10)$

19) $10p^3 - 1960p$

$10p(p^2 - 196)$

$10p(p-14)(p+14)$

21) $81v^4 - 900v^2$

$9v^2(9v^2 - 100)$

$9v^2(3v+10)(3v-10)$

12) $3 + 6b + 3b^2$

$3b^2 + 6b + 3$

$3(b^2 + 2b + 1)$

$b \quad 1$

$3(b+1)^2$

14) $100x^2 + 180x + 81$

$10x \quad 9$

$(10x+9)^2$

16) $49n^2 - 56n + 16$

$7n \quad 4$

$(7n-4)^2$

18) $1 - r^2$

$(1+r)(1-r)$

or

$-1(r^2-1)$
 $-1(r+1)(r-1)$

20) $343b^2 - 7b^4$

$7b^2(49 - b^2)$

$7b^2(7+b)(7-b)$

22) $200m^4 + 80m^3 + 8m^2$

$8m^2(25m^2 + 10m + 1)$

$5m \quad 1$

$8m^2(5m+1)^2$