

Factoring Practice

Factor each completely.

1) $4x^4 - 32x^3 - 36x^2$

$4x^2(x^2 - 8x - 9)$

	x	1
x	x^2	x
-9	$-9x$	-9

	-9
1	-9
3	-3

$4x^2(x+1)(x-9)$

3) $k^2 + 4k$

$k(k+4)$

2) $v^3 + 6v^2 - 7v$

$v(v^2 + 6v - 7)$

	v	-1
v	v^2	-v
7	$7v$	-7

	-7
-1	7

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

4) $k^4 - 12k^3 + 20k^2$

$k^2(k^2 - 12k + 20)$

	k	-2
k	k^2	$-2k$
-10	$-10k$	20

	20
-1	-20
-2	-10
-4	-5

$k^2(k-2)(k-10)$

5) $3x^4 + 7x^3 - 40x^2$

$x^2(3x^2 + 7x - 40)$

	3x	-8
x	$3x^2$	$-8x$
5	$15x$	-40

	-120
-1	120
-2	60
-3	40
-4	30
-5	24
-6	20
-8	15
-10	12

$x^2(x+5)(3x-8)$

6) $21b^2 - 183b - 270$

$3(7b^2 - 61b - 90)$

	7b	9
b	$7b^2$	$9b$
-10	$-70b$	-90

	-630
1	-630
2	-315
3	-210
5	-106
6	-105
7	-90
9	-70
10	-63
14	-45
15	-42
18	-35

$3(b-10)(7b+9)$

8) $5x^2 + 3x - 2$

	5x	-2
x	$5x^2$	$-2x$
1	$5x$	-2

	-10
-1	10
-2	5

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

7) $7v^2 - 2v - 9$

	v	1
7v	$7v^2$	$7v$
-9	$-9v$	-9

	-63
1	-63
3	-21
7	-9

$(7v-9)(v+1)$

9) $48v^2 - 204v - 54$

$6(8v^2 - 34v - 9)$

	$4v$	1
$2v$	$8v^2$	$2v$
-9	$-36v$	-9

$6(2v-9)(4v+1)$

-72

1	-72
2	-36
3	-24
6	-12
8	-9

10) $4v^4 - 25v^3 + 36v^2$

$v^2(4v^2 - 25v + 36)$

	$4v$	-9
v	$4v^2$	$-9v$
-4	$-16v$	36

$v^2(v-4)(4v-9)$

144

-1	-144
-2	-72
-3	-46
-4	-36
-6	-24
-8	-18
-9	-16
-12	-12

11) $6x^2 + 13x + 6$

	$3x$	2
$2x$	$6x^2$	$4x$
3	$9x$	6

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

36

1	36
2	18
3	12
4	9
6	6

12) $9v^2 + 88v + 63$

	$9v$	7
v	$9v^2$	$7v$
9	$81v$	63

$(9v+7)(v+9)$

567

1	567
3	189
7	81
9	63
21	27

13) $3m^2 + 19mn - 14n^2$

	$3m$	$-2n$
m	$3m^2$	$-2mn$
$7n$	$21mn$	$-14n^2$

$(3m-2n)(m+7n)$

-42

-1	42
-2	21
-3	14
-6	7

14) $7x^2 + 61xy + 40y^2$

	$7x$	$5y$
x	$7x^2$	$5xy$
$8y$	$56xy$	$40y^2$

$(7x+5y)(x+8y)$

280

1	280
2	140
4	70
5	56
7	40
8	35
10	28
14	20

15) $5m^2 + 47mn + 56n^2$

	$5m$	$7n$
m	$5m^2$	$7mn$
$8n$	$40mn$	$56n^2$

$(5m+7n)(m+8n)$

280

1	280
2	140
4	70
5	56
7	40
8	35
10	28
14	20

16) $5a^2 - 22ab + 8b^2$

	$5a$	$2b$
a	$5a^2$	$-2ab$
$4b$	$-20ab$	$8b^2$

$(a+4b)(5a+2b)$

40

-1	40
-2	-20
-4	-10
-5	-8