

Factor by Grouping

Factor each completely.

1) $25v^3 - 15v^2 + 5v - 3$

2) $4x^3 + x^2 + 8x + 2$

3) $10p^3 - 25p^2 + 6p - 15$

4) $20n^3 - 4n^2 + 15n - 3$

5) $3m^3 - 9m^2 + 2m - 6$

6) $r^3 + 5r^2 + 3r + 15$

7) $12x^3 + 4x^2 + 9x + 3$

8) $5b^3 - 10b^2 + b - 2$

9) $2k^3 - 4k^2 + k - 2$

10) $20n^3 - 5n^2 + 16n - 4$

$$11) xy - 6x - 6y + 36$$

$$12) 147xy - 126x + 105y - 90$$

$$13) 7ab + 6a^2 + b^2$$

$$14) 56mn - 8m + 35n - 5$$

$$15) 2xy + 6x + y^2 + 3y$$

$$16) 25mn - 30m^2 - 15n + 18m$$

$$17) 6v^3 - 48v^2$$

$$18) 3r^2 - 3r$$

$$19) 2m^3 - 20m^2$$

$$20) 6a^3 + 36a^2$$

Factor by Grouping

Factor each completely.

1) $25v^3 - 15v^2 + 5v - 3$

$$(5v^2 + 1)(5v - 3)$$

2) $4x^3 + x^2 + 8x + 2$

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

3) $10p^3 - 25p^2 + 6p - 15$

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

4) $20n^3 - 4n^2 + 15n - 3$

$$(4n^2 + 3)(5n - 1)$$

5) $3m^3 - 9m^2 + 2m - 6$

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

6) $r^3 + 5r^2 + 3r + 15$

$$(r^2 + 3)(r + 5)$$

7) $12x^3 + 4x^2 + 9x + 3$

$$(4x^2 + 3)(3x + 1)$$

8) $5b^3 - 10b^2 + b - 2$

$$(5b^2 + 1)(b - 2)$$

9) $2k^3 - 4k^2 + k - 2$

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

10) $20n^3 - 5n^2 + 16n - 4$

$$(5n^2 + 4)(4n - 1)$$

$$11) xy - 6x - 6y + 36$$
$$(x - 6)(y - 6)$$

$$12) 147xy - 126x + 105y - 90$$
$$3(7x + 5)(7y - 6)$$

$$13) 7ab + 6a^2 + b^2$$
$$(a + b)(b + 6a)$$

$$14) 56mn - 8m + 35n - 5$$
$$(8m + 5)(7n - 1)$$

$$15) 2xy + 6x + y^2 + 3y$$
$$(2x + y)(y + 3)$$

$$16) 25mn - 30m^2 - 15n + 18m$$
$$(5m - 3)(5n - 6m)$$

$$17) 6v^3 - 48v^2$$
$$6v^2(v - 8)$$

$$18) 3r^2 - 3r$$
$$3r(r - 1)$$

$$19) 2m^3 - 20m^2$$
$$2m^2(m - 10)$$

$$20) 6a^3 + 36a^2$$
$$6a^2(a + 6)$$