

Factorization Worksheet 3 - Grouping

XII. Extra: Factoring by Grouping

$$\begin{aligned}6ax - 2b - 3a + 4bx &= 6ax - 3a + 4bx - 2b \\ &= 3a(2x - 1) + 2b(2x - 1) \\ &= (2x - 1)(3a + 2b)\end{aligned}$$

- $x^2 + 2x + xy + 2y$
- $3a^2 - 2b - 6a + ab$
- $t^3 - t^2 + t - 1$ Hint: $t - 1 = 1(t - 1)$
- $10 + 2t - 5s - st$
- $\frac{2}{3}bc - \frac{14}{3}b + c - 7$
- $4u^2 + v + 2uv + 2u$
- $ad + 3a - d^2 - 3d$
- $n^2 + 2n + 3mn + 6m$
- $2ax^2 + bx^2 - 2ay^2 - by^2$
- $yz^2 - y^3 + z^3 - y^2z$
- $y^3 - y^2 - 4y + 4$
- $x^2a + x^2b - 16a - 16b$
- $x^3 + x^2 - x - 1$
- $a^3 - a^2 - 8a + 8$

Answers

XII. Extra: Factoring by Grouping

- $(x + 2)(x + y)$
- $(a - 2)(3a + b)$
- $(t - 1)(t^2 + 2)$
- $(5 + t)(2 - s)$
- $(c + 7)\left(\frac{2}{3}b + 1\right)$
- $(2u + 1)(2u + v)$
- $(d + 3)(a - d)$
- $(n + 2)(n + 3m)$
- $(x - y)(x + y)(2a + b)$
- $(z - y)(z + y)^2$
- $(y - 1)(y + 2)(y - 2)$
- $(a + b)(x + 4)(x - 4)$
- $(x + 1)^2(x - 1)$
- $(a - 1)(a^2 - 8)$