

5.12

Factoring Multivariate Polynomial by Grouping: Problem Type 2

• Example 1

Factor

$$4x - y - xy + 4x^2.$$

The terms $4x$ and $4x^2$ have $4x$ as a common factor.

Also, $-y$ and $-xy$ have $-y$ as a common factor.

Gathering terms and factoring out the common factors gives in succession

$$\begin{aligned} 4x - y - xy + 4x^2 &= (4x + 4x^2) + (-y - xy) && \text{(gathering terms)} \\ &= 4x(1 + x) - y(1 + x) && \text{(factoring out } 4x \text{ and } -y) \\ &= (4x - y)(1 + x) && \text{(factoring out } 1 + x) \end{aligned}$$

● ● ● CHECK YOURSELF 1

Factor.

$$2yz - y + 2z^2 - z$$

● ● ● CHECK YOURSELF ANSWER

1. $(2z - 1)(y + z)$.

5.12 Exercises

Name _____

Section _____

Date _____

A N S W E R S

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

Factor each polynomial.

1. $ab - ac + b^2 - bc$

2. $3x^2 - 2xy + 3x - 2y$

3. $xy - 5y^2 - x + 5y$

4. $u^2 + 2uv - 7u - 14v$

5. $8x^2 + 12x - 2xy - 3y$

6. $27x + 12y + 18xy + 8y^2$