

Name: _____ Period: _____ Date: _____

Factoring by Grouping Exit Quiz

Factor the following polynomials by grouping.

1. $cx + cn + dx + dn$

2. $x^3 + x^2 + x + 1$

3. $q^2 + 2q + 5q + 10$

4. $a^2 - 2a + 5a - 10$

5. $x^2 - 6x + 4x - 24$

Factoring by Grouping Exit Quiz

Answer:

Factor the following polynomials by grouping.

$$\begin{aligned}1. & cx + cn + dx + dn \\&= (cx + cn) + (dx + dn) \\&= c(x + n) + d(x + n) \\&= (c + d)(x + n)\end{aligned}$$

$$\begin{aligned}2. & x^3 + x^2 + x + 1 \\&= (x^3 + x^2) + (x + 1) \\&= x^2(x + 1) + (x + 1) \\&= (x^2 + 1)(x + 1)\end{aligned}$$

$$\begin{aligned}3. & q^2 + 2q + 5q + 10 \\&= (q^2 + 2q) + (5q + 10) \\&= q(q + 2) + 5(q + 2) \\&= (q + 5)(q + 2)\end{aligned}$$

$$\begin{aligned}4. & a^2 - 2a + 5a - 10 \\&= (a^2 - 2a) + (5a - 10) \\&= a(a - 2) + 5(a - 2) \\&= (a + 5)(a - 2)\end{aligned}$$

$$\begin{aligned}5. & x^2 - 6x + 4x - 24 \\&= (x^2 - 6x) + (4x - 24) \\&= x(x - 6) + 4(x - 6) \\&= (x + 4)(x - 6)\end{aligned}$$