

Name

8.8 Factor Polynomials Completely

Alg I

I can factor polynomials completely.

Example 1:

$$1) x(x-2) + 1(x-2)$$
$$\boxed{(x+1)(x-2)}$$

Ch. 8 Quiz

Factor by Grouping: Factoring by creating 2 groups of binomials

Ch. 7/8 Test

Example 2/3:

$$2) (a^3 + 3a^2) + (a + 3)$$
$$a^2(a+3) + 1(a+3)$$
$$\boxed{(a^2+1)(a+3)}$$

$$3) y^2 + 2x + yx + 2y$$
$$(y^2 + yx) + (2y + 2x)$$
$$y(y+x) + 2(y+x)$$
$$\boxed{(y+2)(y+x)}$$

Factored Completely: When a polynomial cannot be factored any further

Example 4:

$$4) 3x^3 - 12x$$
$$3x(x^2 - 4)$$
$$\boxed{3x(x+2)(x-2)}$$

$$5) 2y^3 - 12y^2 + 18y$$
$$2y(y^2 - 6y + 9)$$
$$\boxed{2y(y-3)^2}$$

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I can factor polynomials completely.

$$6) m^3 - 2m^2 - 8m$$

$$m(m^2 - 2m - 8)$$

$$\boxed{m(m-4)(m+2)}$$

Ch. 8 Quiz

Example 5:

Ch. 7/8 Test

$$7) w^3 - 8w^2 + 16w = 0$$

$$w(w^2 - 8w + 16) = 0$$

$$w(w-4)^2 = 0$$

$$\begin{array}{l|l} \textcircled{w=0} & w-4=0 \\ & +4 \quad +4 \\ & \textcircled{w=4} \end{array}$$

$$8) x^3 - 25x = 0$$

$$x(x^2 - 25) = 0$$

$$x(x+5)(x-5) = 0$$

$$\begin{array}{l|l|l} \textcircled{x=0} & x+5=0 & x-5=0 \\ & -5 \quad -5 & +5 \quad +5 \\ & \textcircled{x=-5} & \textcircled{x=5} \end{array}$$

* Complete Skills Practice, pg. 552, #

$$9) c^3 - 7c^2 + 12c = 0$$

$$c(c^2 - 7c + 12) = 0$$

$$c(c-4)(c-3) = 0$$

$$\begin{array}{l|l|l} \textcircled{c=0} & c-4=0 & c-3=0 \\ & +4 \quad +4 & +3 \quad +3 \\ & \textcircled{c=4} & \textcircled{c=3} \end{array}$$