Accuplacer Study Modules

TOPIC: Factor Trinomials: Lead Coefficient = 1

1. Factor $x^2 + 13x + 22$ completely.

Identify a, b, and c.

$a=1 \quad b=13 \quad c=22$

Factor pairs of $c=22$

$1 \times 22 \quad -1 \times -22$

$2 \times 11 \quad -2 \times -11$

Sums:

$1+22=23 \quad -1+-22=-23$

$2+11=13 \quad -2+-11=-13$

Substitute factor pairs into Two binomials: (answer)

$(x+2)(x+11)$

2. Factor $x^2 - 19x + 90$ completely.

Identify a, b, and c

$a=1 \quad b=-19 \quad c=90$

Factor pairs of $c=90$

$1 \times 90 \quad -1 \times -90$

$2 \times 45 \quad -2 \times -45$

$3 \times 30 \quad -3 \times -30$

$5 \times 18 \quad -5 \times -18$

$6 \times 15 \quad -6 \times -15$

$9 \times 10 \quad -9 \times -10$

Sums:

$1+90=91 \quad -1+-90=-91$

$2+45=47 \quad -2+-45=-47$

$3+30=33 \quad -3+-30=-33$

$5+18=23 \quad -5+-18=-23$

$6+15=21 \quad -6+-15=-21$

$9+10=19 \quad -9+-10=-19$

Substitute factor pairs into two binomials.

Answer: $(x-9)(x-10)$

3. Factor $x^2 + 9x + 20$ completely.

$a=1 \quad b=9 \quad c=20$

Factor pairs of $c=20$

$1 \times 20 \quad -1 \times -20$

$2 \times 10 \quad -2 \times -10$

$4 \times 5 \quad -4 \times -5$

Sums:

$1+20=21 \quad -1+-20=-21$

$2+10=12 \quad -2+-10=-12$

$4+5=9 \quad -4+-5=-9$

Substitute factor pairs into two binomials.

Answer:

$(x+4)(x+5)$

4. Factor $x^2 + 5x - 24$ completely.

$a=1 \quad b=5 \quad c=-24$

Factor pairs of $c=-24$

$-1 \times 24 \quad 1 \times -24$

$-2 \times 12 \quad 2 \times -12$

$-3 \times 8 \quad 3 \times -8$

$-4 \times 6 \quad 4 \times -6$

Sums:

$-1+24=23 \quad 1+-24=-23$

$-2+12=10 \quad 2+-12=-10$

$-3+8=5 \quad 3+-8=-5$

$-4+6=2 \quad 4+-6=-2$

Substitute factor pairs into two binomials.

Answer:

$(x-3)(x+8)$