AA PREP: FACTORING—WORKSHEET #2

KEY

Factor completely.

1) $x^2 - x - 42$

BASIC QUADRATIC TRINOMIAL
ax^2+bx+c
$a=1$

-42 PRODUCT
-7 6
-1 SUM

$(x-7)(x+6)$

2) $16x^2 - 1$

$(4x)^2 \quad (1)^2$

DIFFERENCE OF TWO SQUARES

$(4x-1)(4x+1)$

3) $x^2(x-5) - 36(x-5)$

REGROUP
DIFFERENCE OF TWO SQUARES

$(x^2-36)(x-5)$

$(x-6)(x+6)(x-5)$

4) $2x^5 - 162x$

GCF
DIFFERENCE OF TWO SQUARES

$2x(x^4-81)$

$2x(x^2-9)(x^2+9)$

$2x(x-3)(x+3)(x^2+9)$

5) $x^2 - 8x + 16$

PERFECT SQUARE TRINOMIAL
(ALSO BASIC QUADRATIC TRINOMIAL)

16 PRODUCT
-4 -4
-8 SUM

$(x-4)(x-4)$

$(x-4)^2$

6) $8x^2 + 14x - 15$

MORE COMPLICATED QUADRATIC TRINOMIAL
ax^2+bx+c
$a \neq 1$

-120 PRODUCT
20 -6
14 SUM

$8x^2 + 20x - 6x - 15$

$4x(2x+5) - 3(2x+5)$

$(4x-3)(2x+5)$

7) $x^3 + 3x^2 - 4x - 12$

GROUPING
DIFFERENCE OF TWO SQUARES

$x^2(x+3) - 4(x+3)$

$(x^2-4)(x+3)$

$(x-2)(x+2)(x+3)$

8) $-x^2 - x + 30$

GCF
BASIC QUADRATIC TRINOMIAL
ax^2+bx+c
$a=1$

$-1(x^2+x-30)$

-30 PRODUCT
-5 6
1 SUM

$-(x-5)(x+6)$

9) $9x^2 + 24x + 16$

PERFECT SQUARE TRINOMIAL
(ALSO MORE COMPLICATED QUADRATIC TRINOMIAL)

144 PRODUCT
12 12
24 SUM

$9x^2 + 12x + 12x + 16$

$3x(3x+4) + 4(3x+4)$

$(3x+4)(3x+4)$

$(3x+4)^2$

10) $4x^3 - 24x^2 + 36x$

$4x(x^2 - 6x + 9)$

GCF
BASIC QUADRATIC TRINOMIAL
ax^2+bx+c
$a=1$
(ALSO PERFECT SQUARE TRINOMIAL)

9 PRODUCT
-3 -3
-6 SUM

$4x(x-3)(x-3)$

$4x(x-3)^2$