Factor completely.

1) $6x^2 - 6xy + 3zy - 3zx$

$3(2x - z)(x - y)$

2) $3ax - 3ay - 4by + 4bx + 5cx - 5cy$

$(x - y)(3a + 4b + 5c)$

Review.
Multiply.

1) $(x-2)(x+2) = \underline{x^2 - 4}$

2) $(6x-5)(6x+5) = \underline{36x^2 - 25}$

3) $(7x+4y)(7x-4y) = \underline{49x^2 - 16y^2}$

Learning target:
You can factor completely the differences of two squares and perfect square trinomials.

Differences of 2 squares:
Factor completely.

1) $m^2 - 64$ $(m+8)(m-8)$

2) $16y^2 - 81z^2$ $(4y+9z)(4y-9z)$

3) $3x^3 - 27x$

$3x(x^2 - 9)$

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

4) $y^4 - 625$

$(g^2 + 25)(g^2 - 25)$

$$\boxed{(g^2 + 25)(g + 5)(g - 5)}$$

5) $6x^3 + 30x^2 - 24x - 120$

$6(x^3 + 5x^2 - 4x - 20)$

$6[x^2(x + 5) - 4(x + 5)]$

$6(x + 5)(x^2 - 4)$

$$\boxed{6(x + 5)(x + 2)(x - 2)}$$

6) $x^{16} - 1$

$(x^8 + 1)(x^8 - 1)$

$(x^8 + 1)(x^4 + 1)(x^4 - 1)$

$(x^8 + 1)(x^4 + 1)(x^2 + 1)(x^2 - 1)$

$\boxed{(x^8 + 1)(x^4 + 1)(x^2 + 1)(x + 1)(x - 1)}$

7) $x^2 + 4 \longrightarrow \underline{\text{Prime}}$

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

$x^2 + 2x + 2x + 4$

$x^2 + 4x + 4$

$(x - 2)(x - 2)$

$x^2 - 2x - 2x + 4$

$x^2 - 4x + 4$

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

$$x^2 - 4$$

1) $(x+3)^2 = x^2 + 6x + 9$ ✳

2) $(2x-3)^2 = 4x^2 - 12x + 9$ ✳

3) $(5x+3)^2 = 25x^2 + 30x + 9$ ✳

4) $(6x-5)^2 = 36x^2 - 60x + 25$ ✳

✳ 1st and last are squares
✳ 1st and last are pos.
✳ trinomials

You can factor perfect square trinomials .

1) $16x^2 - 56x + 49$

$4x \cdot 7$
$28x$

$(4x - 7)^2$

2) $4x^2 + 4x + 1$

$(2x+1)^2$

~~$(2x-6)^2$~~

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

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

$4(x - 3)^2$

41 $x^2 - 10x - 25$ Prime

Assignment

P.519 (16-42 E)

P. 526-527 (16-32 E)