$$
\begin{aligned}
& \text { 1) } \begin{array}{l}
2 x^{2}-6 x y+3 z y-3 z x \\
3(2 x-z)(x-y)
\end{array}
\end{aligned}
$$

$$
\begin{aligned}
& \text { 2) } 3 a x-3 a y-4 b y+4 b x+5 c x-5 c y \\
& (x-y)(3 a+4 b+5 c)
\end{aligned}
$$

Review.
Multiply.

1) $(x-2)(x+2)=x^{2}-4$
2) $(6 x-5)(6 x+5)=36 x^{2}-25$
3) 

$$
\begin{gathered}
(7 x+4 y)(7 x-4 y)= \\
49 x^{2}-16 y^{2}
\end{gathered}
$$

Section 8-8 and 8-9 Learning target:
You can factor completely the differences of two squares and perfect square trinomials.

Differences of 2 squares:

$$
\begin{aligned}
& \text { 1) } m^{2}-64(m+8)(m-8) \\
& \text { 2) } 16 y^{2}-81 z^{2}(4 y+9 z)(4 y-9 z)
\end{aligned}
$$

3) $3 x^{3}-27 x$

$$
\begin{aligned}
& 3 x\left(x^{2}-9\right) \\
& 3 x(x+3)(x-3)
\end{aligned}
$$

$$
\begin{aligned}
& \text { 4) } y^{4}-625 \\
& \left(g^{2}+25\right)\left(g^{2}-25\right) \\
& \frac{\left(g^{2}+25\right)(g+5)(g-5)}{5) 6 x^{3}+30 x^{2}-24 x-120} \\
& 6\left(x^{3}+5 x^{2}-4 x-20\right) \\
& 6\left(x^{2}(x+5)-4(x+5)\right) \\
& 6(x+5)\left(x^{2}-4\right) \\
& 6(x+5)(x+2)(x-2)
\end{aligned}
$$

$$
\begin{aligned}
& \begin{array}{l}
6) \\
x^{16}-1 \\
\left(x^{8}+1\right)\left(x^{8}-1\right) \\
\left(x^{8}+1\right)\left(x^{4}+1\right)\left(x^{4}-1\right) \\
\left(x^{8}+1\right)\left(x^{4}+1\right)\left(x^{2}+1\right)\left(x^{2}-1\right) \\
\left(x^{8}+1\right)\left(x^{4}+1\right)\left(x^{2}+1\right)(x+1)(x-1)
\end{array} \\
& \begin{array}{ll}
7) x^{2}+4 & \rightarrow \text { Prime } \\
(x+2)(x+2) & (x-2)(x-2) \\
x^{2}+2 x+2 x+4 & x^{2}-2 x-2 x+4 \\
x^{2}+4 x+4
\end{array} x^{2}-4 x+4
\end{aligned}
$$

$$
x^{2}-4
$$

Review.
Multiply.

1) $(x+3)^{2}=x^{2}+6 x+9$

* 

2) $(2 x-3)^{2}=4 x^{2}-12 x+9 *$
3) $(5 x+3)^{2}=25 x^{2}+30 x+9 x$
4) $(6 x-5)^{2}=36 x^{2}-60 x+25 t$

* I St and last are squares
* 1 4 and last are pos.
* trinomial

You can factor perfect square trinomial

1) 16

$$
\begin{aligned}
& 16 x^{2}-56 x+49 \\
& (4 x-7)^{2}
\end{aligned}
$$

$4 \times .7$

$$
\text { 2) } \begin{aligned}
& 4 x^{2}+4 x+1 \\
& (2 x+1)^{2}
\end{aligned}
$$

$$
\begin{aligned}
& \text { 3) } 4 x^{2}-24 x+36 \\
& 4\left(x^{2}-6 x+9\right) \\
& 4(x-3)^{2}
\end{aligned}
$$

4) $x^{2}-10 x-25$ Prime

Assignoment

$$
\begin{aligned}
& \theta .519(16-42 \varepsilon) \\
& \text { P. } 526-527(16-32 E)
\end{aligned}
$$

