

HW: Grouping/40-58 even

Warm up:

Factor.

$$b^2 - 36 \\ (b+6)(b-6)$$

$$1) x^2 - a^2 = (x+a)(x-a)$$

$$2) \underline{(x - 3y)^2} - 36 \quad (x - 3y + 6)(x - 3y - 6)$$

$$3) a^2 - (x + 1)^2$$

$$(a + (x+1))(a - (x+1))$$

$$(a + x + 1)(a - x - 1)$$

HW Solutions

$$\textcircled{36} (a^2b^2 + 2a^2) - (2ab^2 + 4a)$$

$$a^2(b^2 + 2) - 2a(b^2 + 2)$$

$$(b^2 + 2)(a^2 - 2a)$$

$$a(b^2 + 2)(a - 2)$$

$$2p(p^2 - 2pq) - 2(2qr - pr)$$

$$p(p - 2q) - 2r(2q - p)$$

$$p(p - 2q) + 2r(p - 2q)$$

$$(p - 2q)(p + 2r)$$

$$\textcircled{16} (x^2 - xy + x) - (y - x - 1)$$

$$x(x - y + 1) - (y - x - 1)$$

$$x(x - y + 1) + \color{red}{\vdots} \color{red}{(x - y + 1)}$$

$$\color{red}{(x - y + 1)}(x + 1)$$

$$\textcircled{18} (9p - 3pq) + (2nq - 6n)$$

$$3p(3 - q) + 2n(q - 3)$$

$$3p(3 - q) - 2n(3 - q)$$

$$(3 - q)(3p - 2n)$$

$$\textcircled{28} \quad \underline{n^3 + 2n^2 - 4n - 8}$$

$$n^2 \underline{(n+2)} - 4 \underline{(n+2)}$$

$$(n+2)(n^2 - 4)$$

$$(n+2)(n+2)(n-2)$$

$$\textcircled{(n+2)^2(n-2)}$$

$$n^2x - 4x$$

$$x(n^2 - 4)$$

$$(14) \quad r(\underline{r-s-2t}) + s(\underline{r-s-2t})$$

$$(r-s-2t)(r+s)$$

$$(12) \quad a(\underline{a-b}) + 4b(\underline{a-b}) - a(\underline{a-b})$$

$$(a-b)(\cancel{a} + 4b - \cancel{a})$$

$$4b(a-b)$$

$$\underline{a^2 - 2ab + b^2 - 4}$$

$$(a - b)^2 - 4$$

$$(a - b + 2)(a - b - 2)$$

$$x^2 + 10x + 25 - y^2$$

$$(x + 5)^2 - y^2$$

$$(x + 5 + y)(x + 5 - y)$$

$$a^2 - 4x^2 + 12xy - 9y^2$$

$$a^2 - (4x^2 - 12xy + 9y^2)$$

$$a^2 - (2x - 3y)^2$$

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

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

$$\underline{p^2} + \underline{q^2} - \underline{r^2} - \underline{2pq} + \underline{2r} - \underline{1}$$

$$(p^2 - 2pq + q^2) - (r^2 - 2r + 1)$$

$$(p - q)^2 - (r - 1)^2$$

$$(p - q + r - 1)(p - q - (r - 1))$$

$$(p - q + r - 1)(p - q - r + 1)$$

Factor.

$$1) x^3 - 3x^2 - x + 3$$

$$2) u^2 - v^2 + 2v - 1$$

$$3) h^2 - 4k^2 - 4h + 4$$

$$4) x^2 - 4y^2 + 4z^2 - 4xz$$

$$5) x^4 - y^4 - 4x^2 + 4$$

$$1) \underline{x^3 - 3x^2} - \underline{x + 3}$$

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

$$(x-3)(x^2-1)$$

$$(x-3)(x+1)(x-1)$$

$$2) u^2 - \underline{v^2 + 2v - 1}$$

$$u^2 - (v^2 - 2v + 1)$$

$$u^2 - (v-1)^2$$

$$(u + (v-1))(u - (v-1))$$

$$(u + v - 1)(u - v + 1)$$

$$3) h^2 - 4k^2 - 4h + 4$$

$$4) x^2 - 4y^2 + 4z^2 - 4xz$$

$$5) x^4 - y^4 - 4x^2 + 4$$

$$a^2 + b^2 + 2ab + 2a + 2b$$

