Quiz 5.5

1 (2 point) Factor the trinomial completely.

$$p^2+3p-18$$

2. (2 point) Factor the trinomial completely.

$$2x^2+11xy-21y^2$$

3. (2 point) Factor the trinomial completely.

$$8(z+1)^2+2(z+1)-1$$

5.6 Factoring Special Products

Expand the following

$(a+b)^2 = a^2+2ab+b^2$

$(a+b)(a+b) = a^2+2ab+b^2$

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

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

Perfect Square Trinomials

$a^2+2ab+b^2=(a+b)^2$

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

Factor:

$a=z$, $b=5$ $z^2-10z+25 = (z-5)^2$

$a=3x$, $b=8y$ $9x^2+48xy+64y^2 = (3x+8y)^2$

$a=4m^2$, $b=3$ $32m^4-48m^2+18$

$2(16m^4-24m^2+9)$

$2(4m^2-3)^2$

You try

$x^2-18x+81$

$(x-9)^2$

$x^2-9x+81$

$4x^2+20xy+25y^2$

$18p^4-84p^2+98$

Expand

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

Difference of squares

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

Factor:

$y^2 - 100 = (y+10)(y-10)$

$9x^2 - 16y^4$

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

You try

$z^2 - 16$

$16m^2 - 81n^2$

$x^2 + 4$ $x^2 + 0x + 4$

Factor

$32x^4 - 2$

$2(16x^4 - 1)$

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

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

You try

$3b^4 - 48$

Factor

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

$x^2 + 10x + 25$

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

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

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

You try

$p^2 - 8p + 16 - q^2$

$(p-4)^2 - q^2$

$((p-4)+q)((p-4)-q)$

$(p+q-4)(p-q-4)$

Sum and difference of two cubes

$a^3 + b^3 = (a+b)(a^2 - ab + b^2)$

$a^3 - b^3 = (a-b)(a^2 + ab + b^2)$

Factor

$x^3 - 27$ $(x-3)(x^2+3a+9)$

$8m^3 + 125n^6$ $(2m+5n^2)(4m^2 - 10mn^2 + 25n^4)$

$a^3 + b^3 = (a+b)(a^2 - ab + b^2)$
$a^3 - b^3 = (a-b)(a^2 + ab + b^2)$

You try

$z^3 + 64$

$125p^3 - 27q^6$

Factor

$54x^3 - 2y^6$

47) $x^6 - 64y^3$

$(x^2 - 4y)(x^4 + 4x^2y + 16y^2)$