Name: _____   Date: _____

Learning Goal 1.2	Factor trinomials of the form $ax^2 + bx + c$.

Factor these trinomials.

a. $4 - 20x + 25x^2$

$2 \times \sqrt{4 \times 25}$
$= 2 \times 2 \times 5$
$= 20$

$= (2 - 5x)^2$

b. $25 - 36x^2$

$\sqrt{25} = 5$
$\sqrt{36x^2} = 6x$

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

c. $5x^4 - 80y^4$
$= 5(x^4 - 16y^4)$

$\sqrt{x^4} = x^2$
$\sqrt{16y^4} = 4y^2$

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

d. $4x^2 + 12x + 9$

$2 \times \sqrt{4 \times 9}$
$= 2 \times 2 \times 3$
$= 12$

$= (2x + 3)^2$

e. $4x^2 + 16xy + 16y^2$
$= 4(x^2 + 4xy + 4y^2)$

$2 \times \sqrt{1 \times 4}$
$= 2 \times 1 \times 2$
$= 4$

$= 4(x + 2y)^2$

f. $g^2 + 6gh + 9h^2$

$2 \times \sqrt{1 \times 9}$
$= 2 \times 1 \times 3$
$= 6$

$= (g + 3h)^2$

g. $18m^2 - 2n^2$
$= 2(9m^2 - n^2)$

$\sqrt{9m^2} = 3m$
$\sqrt{n^2} = n$

$= 2(3m - n)(3m + n)$

h. $64p^6 - 16q^6$
$= 16(4p^6 - q^6)$

$\sqrt{4p^6} = 2p^3$
$\sqrt{q^6} = q^3$

$= 16(2p^3 - q^3)(2p^3 + q^3)$