A.28

Simplify:

1) $(y-8)^2$ FOIL

$(y-8)(y-8)$

$y^2-16y+64$

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

$= x^4 + x^2 5y + x^2 5y + 25y$

$= x^4 + 10x^2y + 25y^2$

3) $(5x+4w)(5x-4w)$ FOIL

$25x^2 - 20xw + 20xw - 16w^2$

$25x^2 - 16w^2$

4) $(x+y)(x^2-3xy+2y^2)$ FOIL Long way

$x^3 - 3x^2y + 2xy^2 + yx^2 - 3xy^2 + 2y^3$

$x^3 - 2x^2y - xy^2 + 2y^3$

5) $(n-3)(n+4)(n-1)$ FOIL Longer

$(n^2+4n-3n-12)(n-1)$

$(n^2+n-12)(n-1) = n^3+n^2-12n-n^2-n+12$

$= n^3 - 13n + 12$

6) $(3a+4b)^2$ FOIL

$(3a+4b)(3a+4b)$

$= 9a^2 + 12ab + 12ab + 16b^2$

$= 9a^2 + 24ab + 16b^2$

Factor completely. If the polynomial is not ~~factorable, write prime~~.

7) $-15x^2 - 5x$

$= -5x(x+1)$

8) $16r^2 - 169$

$= (4r+13)(4r-13)$

9) $x^2 + xy + 3x$

$= x(x+y+3)$

10) $3h^2 - 48$

$= 3(h^2-16)$

$= 3((h+4)(h-4))$

11) $3a^2bx + 15cx^2y + 25ad^4y$

$=$ prime

12) $10a^4b - 12a^2b^2$

$= 2a^2b(5a-6b)$

13) $3x^2 - 3y^2$

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

$= 3((x+y)(x-y))$

14) $16n^2 + 25m^2$

$=$ prime

15) $12ab^3 - 8a^2b^2 + 10a^4b^3$

$= 2(6ab^3 - 4a^2b^2 + 5a^5b^3)$

$= 2ab^2(6b - 4a + 5a^4b)$

16) $x^4 - y^2$

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