Classwork 18.

1. Represent the monomials as a square of another monomials:
   Example:
   $\frac{1}{4}a^6x^8 = \left(\frac{1}{2}a^3x^4\right)^2$;

   $a.\ 25a^3$; $b.\ 16c^4$; $c.\ 2\frac{1}{4}a^{10}x^6$;

   $d.\ 64k^8$; $e.\ \frac{1}{49}p^8$; $f.\ 2\frac{7}{9}b^{12}y^{10}$;

2. Are the transformations carried out correctly:

   $a.\ (2x + 3y)(3x - 2y) = 6x^2 - 4xy + 9xy - 6y^2 = 6x^2 + 5xy - 6y^2$;

   $b.\ (xy^2 + x^2y)(xy + 3) = x^2y^3 + 3xy^2 + x^3y^2 + 3x^2y$

3. Simplify the expressions:

   $a)\ (2x - 2a)(3a^2 - 4a + 5)$; $b)\ (7x^2 - 2x + 4 - x^2)(2x - x - 1)$;

   $c)\ (x^2 + 3x - 2)(2x^2 - x + 4)$; $d)\ (2m^3 - 7m^2 + 4m)(3 - 8m + m^2)$;

   $e)\ (2a + 1)(3 + a)(5a + 2)$; $f)\ (x - 3)(2x - 1)(7 + 2x)$

   $g)\ (2m - n)(3n + 2m)(m - 5n)$; $h)\ (p - 8q)(4q - p)(p + 8q)$.

4. Determine whether the polynomial is a square of any binomial.
   $a.\ a^2 + 4ac + 4c^2$; $b.\ 1 + x^2 + 2x$;
   $c.\ a^2c^2 + 2acd + d^2$; $d.\ 9 + 5x + x^2$
   $e.\ a^2 - 2ab + b^2$; $f.\ 1 + 9x^2 - 6x$;
   $g.\ x^4 - 6x^2y + 9y^2$; $h.\ 25 - 30c + 9c^2$

5. Simplify the expression using the formula for the difference of squares. First rewrite the expression as a difference of squares, then simplify the exponent notation.

Example:
$(3a-2b)(3a+2b)=(3a)^2-(2b)^2=9a^2-4b^2;$

$(x+2y)(x-2y);$	$(2a+b)(2a-b);$
$(3m-n)(3m+n);$	$(p-7q)(7q+p);$
$(2a-3b)(2a+3b);$	$(5x+4y)(4y-5x);$
$(4p-1)(1+4p);$	$(5m+8n)(8n-5m);$
$(4y-7x)(7x+4y);$	$(11a-13b)(11a+13b).$

6. Factor the polynomial:

$y^2-x^2;$	$a^2-b^2;$
$9-(3m)^2;$	$(2x)^2-1;$
$25-a^6;$	$16-p^4;$
$p^8-49;$	$m^4-n^2;$
$a^4-b^4.$	$1-x^4;$

7. Completing the square:

$a^2+8a+15;$	$x^4+4b^4;$	$x^2-2xy-3y^2;$
$m^2+7m+10;$	$p^2-5p+6;$	$3m^2+27m+54;$
$x^2+x-12;$	$a^2+6a+8;$	$x^2-x-12.$