Algebra 3

Factorisation Completing the Square Equations *Note each question has 3 parts.*

1	Take out Highest Common Factor (HCF) $4a^2 - 8a^3$	$8s^2t^3 - 4st^2 + 12t$	$(b + 2)^2 + 2(b + 2)$
2	Factorise by grouping in pairs $6h^2 + 3hk + 4h + 2k$	$15ab - 3b^2 - 10a + 2b$	$4ac - 16ad + 40bd - 10bc$
3	Factorise by DOPS (Difference of two perfect squares) $121 - 9d^2$	$1 - d^2$	$1 - x^4$
4	As Above $(x + 3)^2 - 9$	$(2x + 1)^2 - 16$	$(3y - 5)^2 - (2y + 3)^2$
5	As above (take out HCF FIRST) $100 - 4x^2$	$8b^3 - 50b$	$16a^3b^5 - 36ab^3$
6	Factorising trinomials $s^2 + 8s + 15$	$c^2 + c - 12$	$m^2 - 11m + 30$
7	As above(take out HCF FIRST) $2a^2 + 14a + 12$	$5d^2 - 35d + 60$	$6h^2 - 66h - 72$
8	As above $2x^2 + 9x + 4$	$4m^2 - 8m + 3$	$54y^2 - 72y - 30$
9	Complete the following expressions to make perfect squares. (The first one has been done) $x^2 + 6x + \square \rightarrow x^2 + 6x + 9$ i.e. $(x + 3)^2$	$x^2 + 4x + \square$	$t^2 + 10t + \square$
10	Factorise the following by completing the square $x^2 + 2x - 5$	$x^2 - 4x + 1$	$x^2 - 8x + 4$
11	Solve by factorising $62^2 - 38^2$	$72^2 - 28^2$	$68^2 - 18^2$
12	Simplify (by first factorising) $\frac{10d+5}{10d-20}$	$\frac{8b^2 - 16}{24 + 12b^2}$	$\frac{s-4t}{s^2-4t^2} \div \frac{8t-2s}{4t^2-4st+s^2}$
13	Solve (by factorisation) $x^2 - 4x = 0$	$s^2 - 8s + 12 = 0$	$y^2 - 8y = -16$
14	Solve $16x^2 - 1 = 0$	$2y^2 + 5y + 2 = 0$	$3p - 1 = p^2 + p$
15	Solve these quadratic equations using the formula. $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$ $2x^2 + x - 2 = 0$	$5j^2 + 14j = 3$	$5f^2 = 9f + 2$