NAME ANSWER KEY DATE PERIOD ADV.

INTRO TO FACTORING

① Expand terms
② Common factors
③ Take out circled factors
④ Put leftovers inside parentheses

Factor each polynomial by "**undoing**" the distributive property.

1. $7x + 49$

$(7)x + (7)7$

$7(x+7)$

2. $8m - 6$

$(2)2\cdot2\cdot m - (2)3$

$2(4m-3)$

3. $8ax - 56a$

$(2\cdot2\cdot2\cdot a)x - (2\cdot2\cdot7)(a)$

$8a(x-7)$

56 = 2 · 28 = 2 · 14 = 2 · 7

4. $81r + 48rt$

$9\cdot9\cdot r + 8\cdot6\cdot r\cdot t$

$(3)3\cdot3\cdot3(r) + 2\cdot2\cdot2\cdot2\cdot3(r)t$

$3r(27+16t)$

5. $t^2h + 3t$

$(t)\cdot t\cdot h + 3(t)$

$t(th+3)$

6. $a^2b^2 + a$

$(a)a\cdot b\cdot b + (a)$

$a(ab^2+1)$

7. $x + x^2y + x^3y^2$

$(x) + (x)x\cdot y + (x)x\cdot x\cdot y\cdot y$

$x(1+xy+x^2y^2)$

8. $3p^2r^2 + 6pr + p$

$3\cdot(p)\cdot r\cdot r + 2\cdot3(p)\cdot r + (p)$

$p(3pr^2+6r+1)$

Solve each equation. **Show ALL work** and **circle/box** your final answer(s).

9. $x(x-8) = 0$

factor #1 → $x = 0$

factor #2 → $x - 8 = 0$, $x = 8$

10. $b(b+12) = 0$

$b = 0$

$b + 12 = 0$, $b = -12$

11. $(m-3)(m+5) = 0$

$m - 3 = 0$, $m = 3$

$m + 5 = 0$, $m = -5$

12. $(a-9)(2a+1) = 0$

$a - 9 = 0$, $a = 9$

$2a + 1 = 0$, $2a = -1$, $a = -\frac{1}{2}$