Principles of Algebra Name/Date Clee / Today

ALL PROBLEMS CAN BE COMPLETED ON THIS WORKSHEET

WS 12B.1 – Factoring Polynomials by GCF

#1-14, Factor by the GCF method. If there is no GCF, write "prime."

1. $6x + 18$ = $6(x+3)$

2. $7y - 21z$ = $7(y-3z)$

3. $4x^2 + 5x^3$ = $x^2(4+5x)$

4. $3a^4b^2 - 10ab^7c$ = $ab^2(3a^3 - 10b^5c)$

5. $8y^3 + 24y^2$ = $8y^2(y+3)$

6. $7a^2 - 49a$ = $7a(a-7)$

7. $5w^4y^6 - 20w^3y$ = $5w^3y(wy^5 - 4)$

8. $9a + 8b + 7c^2$ no GCF → prime

9. $4p^3 - 12p^2 + 18p$ = $2p(2p^2 - 6p + 9)$

10. $15t^8 - 45t^3$ = $15t^3(t^5 - 3)$

11. $28a^3b^3 + 14a^2b^4 - 7ab^2$ = $7ab^2(4a^2b + 2ab^2 - 1)$

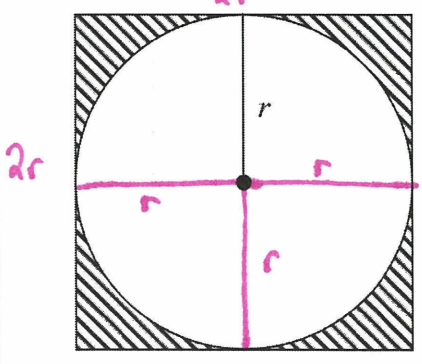
12. $12x^{10}y^7z^4 - 24x^6y^5 + 36x^{11}y^4z^{10}$ = $12x^6y^4(x^4y^3z^4 - 2y + 3x^5z^{10})$

13. $16x^2 - 12x + 24$ = $4(4x^2 - 3x + 6)$

14. $7m^{12}n^8 - 10mn^5 - 12m^8n^5 - 14m^6n^9$ = $mn^5(7m^{11}n^3 - 10 - 12m^7 - 14m^5n^4)$

#15-16, Find the area of the shaded region. Give your answer in factored form.

15.



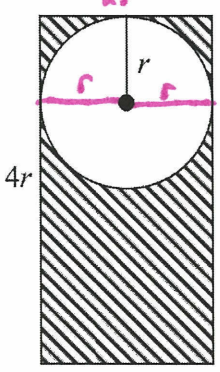
$A_{region} = A_{square} - A_{circle}$

$A_{square} = 2r \cdot 2r = 4r^2$

$A_{circle} = \pi r^2$

$A_{region} = 4r^2 - \pi r^2$ = $r^2(4-\pi)$

16.



$A_{region} = A_{rectangle} - A_{circle}$

$A_{rectangle} = 4r \cdot 2r = 8r^2$

$A_{circle} = \pi r^2$

$A_{region} = 8r^2 - \pi r^2$ = $r^2(8-\pi)$