

Math 105 - Homework 3**Name:** _____*Simplify the following products by expanding. As always, show your work.*

1. $3(x - 4)$

2. $(x + y - 2z)(-3x)$

3. $(x - 2)(x + 3)$

4. $(r - 2)(4r - 1)$

5. $(a - b)(a + b)$

6. $\frac{(3x - 6)(x + 1)}{3}$

7. $4(z - \frac{1}{2})(4z - 2)$

8. $(a + b)(a^2 - ab + b^2)$

9. $\frac{1}{2}(1 - x)(2 + 2x)$

Factor the following expressions as completely as you can.

10. $10x + 5$

11. $-15ab + 6ac$

12. $3x^2 + 2xy$

13. $12xy^2 - 24x^2y$

14. $4x^2(x - 1) - 12x(x - 1)$

15. $5y^2(y^2 + 3) - 10y(y^2 + 3)$

16. $2\pi r^2 + 2\pi rh$

17. $\frac{1}{2}mv^2 + mgh$

18. $2ab + 3ac + a^2$

Simplify each of the following expressions as much as you can.

19. $3u + 7 - \frac{24 - 16u}{8}$

20. $\frac{5x - 10y}{5} + \frac{4x + 8y}{x + 2y}$

21. $\frac{(4x^2 - x)(3x - 3)}{(x - 1)(4x - 1)}$

22. $\frac{\frac{(a + b)(a - b)}{2}}{\frac{a + b}{4}}$

Solve for x using factoring and/or distribution.

23. $xy - 2x = 4$

24. $Ax + Bx + Cx = 1$

25. $10(x + 5) + 2(x + 3) = 8$

26. $\frac{x}{y} + 4x = 3$