

Math 148 “Prerequisite” Skills Homework**Fall 2019**

Express (and simplify) each of the following without a negative exponent:

1. $x^5 \cdot x^{-8}$

2. $(2/3)^{-2}$

3. $2x^{-4} \cdot 3x^{-1}$

4. $(2x^{-2})^3$

5. $(2x^4y^{-5}z^3)^{-3}$

6. $8^{2/3} \cdot 9^{-3/2}$

Multiply

7. $(2x+4)(3x-5)$

8. $(x^{1/2}+3)(2x^{-1/2}-5)$

9. $(2x+1)^3$

Factor

10. $12x^2+x-6$

11. $6x^4y+21x^3y^2-12x^2y^3$

12. $4x^{-3}+6x^{-1}+2x$

13. $3x^3-7x^2-12x+28$

14. $5(x-3)^4(2x+1)^3+6(x-3)^5(2x+1)^2$

15. $8x^3+27$

Solve the equations:

16. $\frac{2}{3}x+5=\frac{-1}{2}x+\frac{2}{3}$

17. $\frac{x}{x-1}+\frac{2}{x+3}=\frac{4}{x^2+2x-3}$

18. $4x(3x+7)(2x-5)=0$

19. $4(x-2)^3(x+3)^3+3(x-2)^4(x+3)^2=0$

20. Find the domain of the function $f(x) = \frac{\sqrt{x}}{2x-9}$

21. Graph the function: $f(x) = \begin{cases} 4 & \text{for } x \leq 0 \\ 3 - x^2 & \text{for } 0 < x \leq 2 \\ 2x - 6 & \text{for } x > 2 \end{cases}$

22. Find the equation of the line that has slope 4 and contains the point (3, -2).

23. Find the equation of the line that has slope $-\frac{2}{3}$ and contains the point $(2, \frac{1}{2})$.

24. Find the equation of the line containing the points (-3, 5) and (3, 1).

25. For the function: $f(x) = 2x^2 - 3x + 5$, find and simplify $\frac{f(x+h)-f(x)}{h}$.