Honors Algebra 2 Name: _____
All operations – Hawk Hour

Simplify the rational expression, if possible.

1. $\frac{4x^2}{40x^2-12x}$	**2.** $\frac{x^2+2x-24}{x^2+7x+6}$	**3.** $\frac{x^2+4x+4}{x^2-5x+4}$
4. $\frac{x-4}{x^3-64}$	**5.** $\frac{3x^3+6x^2+12x}{x^3-8}$	**6.** $\frac{5x^2+18x-8}{10x^2-x-2}$

Multiply the expressions. Simplify the result.

7. $\frac{5x^3y}{x^2y^2}\cdot\frac{y^3}{15x^2}$	**8.** $\frac{x(x-3)}{x-2}\cdot\frac{(x+3)(x-2)}{x}$	**9.** $\frac{3x-12}{x+5}\cdot\frac{x+6}{2x-8}$

10. $\frac{x^2+3x-4}{x^2+4x+4}\cdot\frac{2x^2+4x}{x^2-4x+3}$	**11.** $\frac{x^2+5x-36}{x^2-49}\cdot(x^2-11x+28)$

Divide the expressions. Simplify the result.

12. $\frac{5x^2y^3}{x^7}\div\frac{30xy^4}{y^3}$	**13.** $\frac{x^2-6x-27}{2x^2+2x}\div\frac{x^2-14x+45}{x^2}$
14. $\frac{3x^2+13x+4}{x^2-4}\div\frac{4x+16}{x+2}$	**15.** $\frac{x^2-8x+15}{x^2+4x}\div(x^2-x-20)$

Perform the indicated operation and simplify.

16. $\frac{3x^2}{x-8}+\frac{6x}{x-8}$	**17.** $\frac{5x}{x+3}+\frac{15}{x+3}$	**18.** $\frac{12}{5x}+\frac{7}{6x}$

19. $\frac{8}{3x^2} - \frac{5}{4x}$

20. $\frac{x-4}{5x} - \frac{12}{5(x-4)}$

21. $\frac{12}{x^2+5x-24} + \frac{3}{x-3}$

22. $\frac{3}{x+4} - \frac{1}{x+6}$

23. $\frac{9}{x-3} + \frac{2x}{x+1}$

24. $\frac{x+4}{x^2-4} - \frac{15}{x-2}$

25. $\frac{-15x}{x^2-8x+16} + \frac{12}{x-4}$

26. $\frac{x^2-5}{x^2+5x-14} - \frac{x+3}{x+7}$

Simplify the complex fraction.

27. $\frac{\frac{x}{3}-6}{10+\frac{4}{x}}$

28. $\frac{15-\frac{2}{x}}{\frac{x}{5}+4}$

29. $\frac{\frac{16}{x-2}}{\frac{4}{x+1}+\frac{6}{x}}$

30. $\frac{\frac{1}{2x-5}-\frac{7}{8x-20}}{\frac{x}{2x-5}}$

31. $\frac{\frac{3}{x-2}-\frac{6}{x^2-4}}{\frac{3}{x+2}+\frac{1}{x-2}}$

32. $\frac{\frac{1}{3x^2-3}}{\frac{5}{x+1}-\frac{x+4}{x^2-3x-4}}$