SM3 Name_____

Section 7.2

Date_____ Period____

Find the LCM of each monomial or polynomial expression.

1) $8x^2y,\ 24xy^3$

$24x^2y^3$

2) $30a^3b,\ 40ab$

$120a^3b$

3) $2x+4,\ x+2$

$2(x+2);\ (x+2)$ $\boxed{2(x+2)}$

4) $x^2-16,\ x+4$

$(x-4)(x+4);\ (x+4)$ $\boxed{(x-4)(x+4)}$

5) $x^2-2x-15,\ x^2+5x+6$

$(x-5)(x+3);\ (x+2)(x+3)$ $\boxed{(x-5)(x+3)(x+2)}$

6) $x+2,\ x+3$

$\boxed{(x+2)(x+3)}$

Simplify each expression. (Like Denominators)

7) $\frac{x+6y}{18y}+\frac{x+5y}{18y}$ $\boxed{\frac{2x+11y}{18y}}$

8) $\frac{4x-3y}{10x}-\frac{x+3y}{10x}$ $\boxed{\frac{3x-6y}{10x}}$

9) $\frac{x+5y}{8yx^3}-\frac{x-4y}{8yx^3}$ $=\frac{9y}{8yx^3}=\boxed{\frac{9}{8x^3}}$

10) $\frac{x-1}{x-8}-\frac{x+3}{x-8}$ $\boxed{\frac{-4}{x-8}}$

11) $\frac{4v+2}{4(v-5)}+\frac{v-3}{4(v-5)}$ $\boxed{\frac{5v-1}{4(v-5)}}$

12) $\frac{b+5}{b^2-11b+5}+\frac{b+4}{b^2-11b+5}$ $\boxed{\frac{2b+9}{b^2-11b+5}}$

Simplify each expression. (Unlike Denominators-Monomials)

13) $\frac{4y}{4y^2}-\frac{5x}{5xy}$ $=\frac{1}{y}-\frac{1}{y}\neq 0$

14) $\frac{6}{3}-\frac{6}{5x}$ $=\frac{2}{1}-\frac{6}{5x}=\frac{10x}{5x}-\frac{6}{5x}=\boxed{\frac{10x-6}{5x}}$

15) $\frac{2m}{3n^3}-\frac{4n}{6mn^2}$ $=\frac{2m}{3n^3}-\frac{2}{3mn}$ $=\frac{2m^2}{3mn^3}-\frac{2n^2}{3mn^3}=\boxed{\frac{2m^2-2n^2}{3mn^3}}$

16) $\frac{2}{6}-\frac{5x}{3xy}$ $=\frac{1}{3}-\frac{5}{3y}$ $=\frac{y}{3y}-\frac{5}{3y}\neq\boxed{\frac{y-5}{3y}}$

17) $\frac{2}{5v^2}+\frac{3}{6u^2}$ $\frac{12u^2}{30v^2u^2}+\frac{15v^2}{30v^2u^2}=\frac{12u^2+15v^2}{30v^2u^2}$ $=\frac{3(4u^2+5v^2)}{30v^2u^2}\neq\boxed{\frac{4u^2+5v^2}{10v^2u^2}}$

18) $\frac{5}{2u^2v}-\frac{3v}{5u^2v}$ $=\frac{25}{10u^2v}-\frac{6v}{10u^2v}\neq\boxed{\frac{25-6v}{10u^2v}}$

Simplify each expression. (Unlike Denominators-Polynomials)

19) $\frac{6}{x-4} - \frac{3x}{x+3}$

$= \frac{6(x+3)}{(x-4)(x+3)} + \frac{-3x(x-4)}{(x-4)(x+3)}$

$= \frac{6x+18-3x^2+12x}{(x-4)(x+3)}$

$= \boxed{\frac{-3x^2+18x+18}{(x-4)(x+3)}}$

20) $\frac{4n}{3} - \frac{n+3}{6n+6} = \frac{4n}{3} - \frac{n+3}{2\cdot 3(n+1)}$

$= \frac{4n \cdot 2(n+1)}{6(n+1)} + \frac{-(n+3)}{6n+6}$

$= \frac{8n^2+8n-n-3}{6n+6}$

$= \boxed{\frac{8n^2+7n-3}{6n+6}}$

21) $\frac{5}{n-4} - \frac{3n}{n^2-7n+12}$

$= \frac{5}{(n-4)} - \frac{3n}{(n-4)(n-3)}$

$= \frac{5(n-3)}{(n-4)(n-3)} + \frac{-3n}{(n-4)(n-3)}$

$= \frac{5n-15-3n}{(n-4)(n-3)} = \boxed{\frac{2n-15}{(n-4)(n-3)}}$

22) $\frac{3}{n-3} + \frac{2n}{n^2-9} = \frac{3}{(n-3)} + \frac{2n}{(n-3)(n+3)}$

$= \frac{3(n+3)}{(n-3)(n+3)} + \frac{2n}{(n-3)(n+3)}$

$= \frac{3n+9+2n}{(n-3)(n+3)}$

$= \boxed{\frac{5n+9}{(n-3)(n+3)}}$

23) $\frac{6}{y^2-2y-35} + \frac{4}{y^2+9y+20}$

$\frac{6}{(y-7)(y+5)} + \frac{4}{(y+5)(y+4)}$

$= \frac{6(y+4)}{(y-7)(y+5)(y+4)} + \frac{4(y-7)}{(y-7)(y+5)(y+4)}$

$= \frac{6y+24+4y-28}{(y-7)(y+5)(y+4)}$

$= \boxed{\frac{10y-4}{(y-7)(y+5)(y+4)}}$

24) $\frac{5}{a-4} + \frac{6}{a-3}$

$= \frac{5(a-3)}{(a-4)(a-3)} + \frac{6(a-4)}{(a-4)(a-3)}$

$= \frac{5a-15+6a-24}{(a-4)(a-3)}$

$= \boxed{\frac{11a-39}{(a-4)(a-3)}}$

Simplify each expression. (Complex Fractions)

25) $\dfrac{\frac{m}{5}+\frac{m}{2}}{\frac{2}{m^2}}$

$= \dfrac{\frac{2m}{10}+\frac{5m}{10}}{\frac{2}{m^2}}$

$= \dfrac{\frac{7m}{10}}{\frac{2}{m^2}} = \dfrac{7m}{10} \cdot \dfrac{m^2}{2}$

$= \boxed{\dfrac{7m^3}{20}}$

26) $\dfrac{\frac{1}{3x}+\frac{36}{x^2}}{\frac{36}{x^2}} \cdot \dfrac{3x^2}{3x^2}$

$= \boxed{\dfrac{x+108}{108}}$

27) $\dfrac{\frac{36}{x}}{\frac{x+3}{x}+\frac{x+3}{x^2}} \cdot \dfrac{x^2}{x^2}$

$= \dfrac{36x}{x(x+3)+(x+3)}$

$= \dfrac{36x}{x^2+3x+x+3}$

$= \boxed{\dfrac{36x}{x^2+4x+3}}$

28) $\dfrac{\frac{a-3}{4a}-\frac{a-3}{4}}{\frac{a-3}{4a}} = \dfrac{\frac{a-3}{4a}+\frac{-a(a-3)}{4a}}{\frac{a-3}{4a}}$

$= \dfrac{\frac{a-3-a^2+3a}{4a}}{\frac{(a-3)}{4a}} = \dfrac{\frac{-a^2+4a-3}{4a}}{\frac{(a-3)}{4a}}$

$= \dfrac{-a^2+4a-3}{4a} \cdot \dfrac{4a}{a-3} = \dfrac{-(a-3)(a-1)}{(a-3)}$

$= \boxed{-(a-1)}$

29) $\dfrac{\frac{3u-15}{3}}{\frac{u-5}{3}+\frac{u-5}{u+4}} = \dfrac{\frac{3(u-5)}{3}}{\frac{(u-5)(u+4)}{3(u+4)}+\frac{3(u-5)}{3(u+4)}}$

$= \dfrac{\frac{3(u-5)}{3}}{\frac{(u-5)(u+4)+3(u-5)}{3(u+4)}} = \dfrac{\frac{3(u-5)}{3}}{\frac{(u-5)(u+4+3)}{3(u+4)}}$

$= \dfrac{3(u-5)}{3} \cdot \dfrac{3(u+4)}{(u-5)(u+7)} = \boxed{\dfrac{3(u+4)}{(u+7)}}$

30) $\dfrac{\frac{a^2-4a}{3}}{\frac{3}{a}+\frac{3}{a}} = \dfrac{\frac{a^2-4a}{3}}{\frac{6}{a}}$

$= \dfrac{a^2-4a}{3} \cdot \dfrac{a}{6}$

$= \boxed{\dfrac{a^3-4a^2}{18}}$