Review #4: Simplifying Expressions

Score: _____ / 8

Group Members: _____

Hint from teacher | Ask another group | Look in Notes

Simplify each expression.

1. $\sqrt{8z^3} * \sqrt{6z^3}$

$\sqrt{48z^6}$

$\sqrt{16z^6}\sqrt{3}$

$\boxed{4z^3\sqrt{3}}$

2. $\sqrt{\frac{20}{3n^3}} = \frac{\sqrt{20}}{\sqrt{3n^3}}$

$= \frac{\sqrt{4}\sqrt{5}}{\sqrt{n^2}\sqrt{3n}}$

$= \frac{2\sqrt{5}\sqrt{3n}}{n\sqrt{3n}\sqrt{3n}} = \boxed{\frac{2\sqrt{15n}}{3n^2}}$

3. $(8-\sqrt{7})(1+\sqrt{7})$

$8-\sqrt{7}+8\sqrt{7}-\sqrt{7}\sqrt{7}$

$8-\sqrt{7}+8\sqrt{7}-7$

$\boxed{1+7\sqrt{7}}$

PERFORM the INDICATED OPERATION. SIMPLIFY the result completely.

4. $\frac{x^2-x-20}{x+4} \bullet \frac{x-3}{x^2-2x-15}$

$\frac{(x-5)(x+4)}{(x+4)} \cdot \frac{(x-3)}{(x-5)(x+3)}$

$\boxed{\frac{x-3}{x+3}}$

5. $\frac{7x^2-14x}{x^3} \div \frac{5x-10}{x^5}$

$\frac{7x(x-2)}{x^3} \cdot \frac{x^5}{5(x-2)}$

$\frac{7x^6}{5x^3}$

$\boxed{\frac{7x^3}{5}}$

LCD = $(p-7)(p+7)(p+3)$

6. $\dfrac{p+1}{p^2-49}+\dfrac{p-1}{p^2+10p+21}$

$(p-7)(p+7)\quad(p+7)(p+3)$

$$\frac{(p+1)(p+3)+(p-1)(p-7)}{(p-7)(p+7)(p+3)}$$

$$\frac{p^2+4p+3+p^2-8p+7}{(p-7)(p+7)(p+3)}$$

$$\frac{2p^2-4p+10}{(p-7)(p+7)(p+3)}$$

$$\boxed{\frac{2(p^2-2p+5)}{(p-7)(p+7)(p+3)}}$$

LCD = $(n-1)(n+5)$

7. $\dfrac{(n+5)}{(n+5)}\dfrac{(2n+7)}{(n-1)}-\dfrac{8n}{(n+5)}\dfrac{(n-1)}{(n-1)}$

$$\frac{(n+5)(2n+7)-8n(n-1)}{(n-1)(n+5)}$$

$$\frac{2n^2+17n+35-8n^2+8n}{(n-1)(n+5)}$$

$$\boxed{\frac{-6n^2+25n+35}{(n-1)(n+5)}}$$

8. $\dfrac{\frac{4}{x}-4}{2+\frac{1}{x}}$

LCD = $\dfrac{x}{1}$

$$\frac{\left(\frac{4}{x}-\frac{4}{1}\right)\frac{x}{1}}{\left(\frac{2}{1}+\frac{1}{x}\right)\frac{x}{1}}$$

$$\frac{4-4x}{2x+1}$$

$$\frac{4(1-x)}{2x+1}$$

$$\boxed{\frac{-4(x-1)}{2x+1}}$$