

Warm-Up Test Review ☺

1. Simplify

$$\frac{(4yx^{2n})^2}{2^{-1}x^ny}$$

2. Simplify

$$\frac{(9x^{1/2}y^{2/3})^{1/2}}{15x^{1/3}y^{-1}}$$

3. Simplify

$$\sqrt[3]{\sqrt{64x^8y^5}}$$

4. Expand & Simplify

$$(\sqrt{2x} + \sqrt{y})(\sqrt{2x} - \sqrt{y})$$

5. Expand & Simplify

$$(4x^2 + 3)(4x^2 - 3)$$

6. Expand & Simplify

$$2x(5 - 3x) - (2x - 1)^2$$

7. Factor

$$(x - 1)^2 - 64$$

8. Factor

$$2y^3 - 16$$

9. Factor

$$4x(x - 5)^2 + 6x^2(x - 5)$$

10. Simplify $\frac{2x^2 - 2}{4x^3 - 4x^2 + x - 1}$

11. Simplify $\frac{x^2 - xy - 2y^2}{x^3 + x^2y} \cdot \frac{x}{x^2 + 3xy + 2y^2}$

12. Write the domain in interval notation

$$\sqrt{2x - 8}$$

13. Rationalize the denominator:

$$\frac{6}{\sqrt[3]{2x^2}}$$

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In Radical Form:

1. Simplify

$$\frac{(4yx^{2n})^2}{2^{-1}x^ny} = \frac{16y^2x^{4n}}{2^{-1}x^ny} = 32yx^{3n}$$

2. Simplify

$$\frac{(9x^{1/2}y^{2/3})^{1/2}}{15x^{1/3}y^{-1}} = \frac{3x^{1/4}y^{2/6}}{15x^{1/3}y^{-1}} = \frac{y^{1/3}}{5x^{1/2}} = \frac{y^{4/3}}{5x^{1/2}}$$

3. Simplify

$$\frac{2\sqrt[3]{64x^8y^5}}{4x^2y^5} = \frac{\sqrt[3]{64x^8y^5}}{2x^2y^5} = \frac{((64x^8y^5)\sqrt[3]{2})^{1/3}}{(64x^8y^5)^{1/6}} = 2x^{8/6}y^{5/6} = 2x^{4/3}y^{5/6}$$

4. Expand & Simplify

$$(\sqrt{2x} + \sqrt{y})(\sqrt{2x} - \sqrt{y}) = 2x - \sqrt{2xy} + \sqrt{2xy} - y = 2x - y$$

5. Expand & Simplify

$$(4x^2 + 3)(4x^2 - 3) = 16x^4 - 12x^2 + 12x^2 - 9 = 16x^4 - 9$$

6. Expand & Simplify

$$2x(5 - 3x) - (2x - 1)^2 = 10x - 6x^2 - (4x^2 - 4x + 1) = 10x - 6x^2 - 4x^2 + 4x - 1 = -10x^2 + 14x - 1$$

7. Factor

$$(x-1)^2 - 64 = [(x-1) - 8][(x-1) + 8] = (x-9)(x+7)$$

8. Factor

$$2y^3 - 16 = 2(y^3 - 8) = 2(y-2)(y^2 + 2y + 4)$$

9. Factor

$$4x(x-5)^2 + 6x^2(x-5) = 2x(x-5)[2(x-5) + 3x] = 2x(x-5)(5x-10) = 10x(x-5)(x-2)$$

10. Simplify

$$\frac{2x^2 - 2}{(4x^3 - 4x^2)(x-1)} = \frac{2(x^2 - 1)}{(4x^2 + 1)(x-1)} = \frac{2(x+1)}{4x^2 + 1}$$

11. Simplify

$$\frac{x^2 - xy - 2y^2}{x^3 + x^2y} \cdot \frac{x}{x^2 + 3xy + 2y^2} = \frac{(x+y)(x-2y)}{x^2(x+y)} \cdot \frac{x}{(x+2y)(x+y)} = \frac{(x-2y)}{x(x+2y)(x+y)}$$

12. Write the domain in interval notation

$$2x - 8 = 0 \quad x \geq 4 \quad \sqrt{2x-8} \quad [4, \infty)$$

$$13. \frac{6}{\sqrt[3]{2x^2}} \cdot \frac{\sqrt[3]{4x}}{\sqrt[3]{4x}} = \frac{6\sqrt[3]{4x}}{\sqrt[3]{8x^3}} = \frac{3\sqrt[3]{4x}}{2x}$$