Name _____ Date _____ Period ____

DIRECTIONS: For #1-4, **add** or **subtract** the expressions and simplify the results when possible. Write your answers in the provided blanks. Show work.

1. $\dfrac{3m}{m^2-16} - \dfrac{2}{m-4}$

2. $\dfrac{1}{3ab^2} + \dfrac{4}{a^3b}$

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3. $\dfrac{2c}{c+3} - \dfrac{18}{c^2+3c} + \dfrac{5}{c}$

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

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DIRECTIONS: For #5-7, **multiply** the expressions and simplify the results when possible. Write your answers in the provided blanks. Show work.

5. $\dfrac{5m^4n^3}{m^6n^4} \bullet \dfrac{mn}{30m^3}$

6. $\dfrac{x^2+8x+12}{x^4-x^3-42x^2} \bullet 6x^2$

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7. $\dfrac{5x^2-20}{4x+8} \bullet \dfrac{1}{3x-6}$

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DIRECTIONS: For #8-10, **divide** the expressions and simplify the results when possible. Write your answers in the provided blanks. Show work.

8. $\dfrac{4c^4d}{3d^2} \div \dfrac{2c^2}{15cd}$

9. $\dfrac{m^2-9}{m^3-27} \div \dfrac{m^2-6m+9}{m^2+3m+9}$

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10. $\dfrac{5y^2-5}{15y^3} \div \dfrac{y^2-8y+7}{y^2-11y+28}$

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DIRECTIONS: For #11-12, **perform the indicated operations** and simplify the results when possible. Write your answers in the provided blanks. Show work.

11. $(w^2 + 7w + 10) \div \dfrac{w^2 - 6w - 16}{w^2 - 5w - 24} \bullet \dfrac{w-3}{w+5}$

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12. $\dfrac{n^2 + 2n - 15}{n+2} \div \dfrac{32n^2 - 96n}{15n+15} \div \dfrac{5n+25}{8n+16}$

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DIRECTIONS: For #13-15, simplify the expressions. Write your answers in the provided blanks. Show work.

13. $\dfrac{\dfrac{1}{y}+\dfrac{1}{3y+1}}{\dfrac{5y}{3y+1}}$

14. $\dfrac{\dfrac{1}{4x^2}-\dfrac{1}{y^2}}{\dfrac{1}{4x^2}+\dfrac{1}{xy}+\dfrac{1}{y^2}}$

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15. $\dfrac{a^{-3}+b^{-3}}{a^{-1}+b^{-1}}$

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