Alg 2 Chapter 9 Review Spring 2019

Only state restrictions on variables when indicated.

1. Simplify. State any restrictions on the variable. $\dfrac{6x^4+6x^3-36x^2}{8x^3-32x}$

2. Simplify this product. $\dfrac{2x^2+6x}{x^2-1}\cdot\dfrac{x^2-3x-4}{x^4-x^3-12x^2}$

3. Simplify this quotient. $\dfrac{4x^2-36x+32}{2x^2-13x-7}\div\dfrac{x^2+4x-5}{x^2-2x-35}$

Find each sum or difference. Simplify your answer.

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

5. $\dfrac{5}{2x^2+16x+32}+\dfrac{7}{3x^2+12x}$

Simplify each.

6. $\dfrac{\frac{6}{x^3}+1}{\frac{4}{y^2}}$

7. $\dfrac{\frac{3}{x-1}+7}{4-\frac{1}{x-1}}$

8. $\dfrac{\frac{7}{x^4}+\frac{3}{y}}{\frac{2}{y^2}-\frac{1}{x^2}}$

9. $\dfrac{\frac{4}{x+4}}{\frac{3}{x+2}-\frac{2}{x^2+6x+8}}$

Solve each. Check for extraneous solutions.

10. $\dfrac{5}{x-6}-\dfrac{3}{x+2}=\dfrac{1}{x^2-4x-12}$

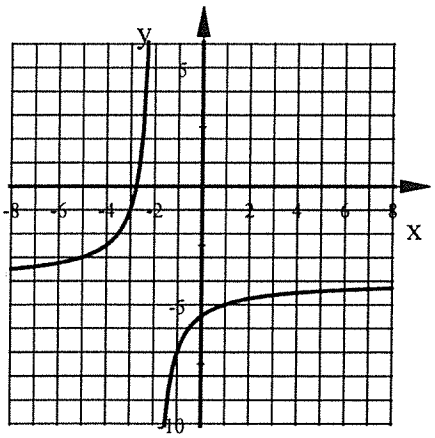
11. $\dfrac{11}{3x}+\dfrac{4}{x^2}=\dfrac{1}{3}$

12. $\dfrac{x}{x+2}=\dfrac{x+10}{x^2-4}$

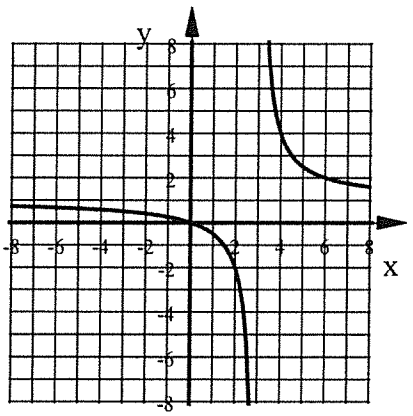
13. $\dfrac{3x}{x-4}+\dfrac{20}{x^2-3x-4}=\dfrac{4x}{x+1}$

14. Each graph is a translation of the function $y=\frac{3}{x}$. Write the equation of each.

a)



b)



15. Sketch each reciprocal function. Show the asymptotes as dashed lines and state their equations.

a) $y=\dfrac{-20}{x-1}-5$ b) $y=\dfrac{0.25}{x+4}+3$

16. State the holes and equations of the VA, if any. $y=\dfrac{3x(2x-7)(x+4)(x-9)}{12x(x+4)(x-5)(x+7)}$

17. State the equations of the HA, if any.

a) $y=\dfrac{9x^2+8x-3}{2x+15}$ b) $y=\dfrac{8x^3+3x-10}{3x^3+4x}$ c) $y=\dfrac{x^2+5x+6}{2x^3-3}$

18. State the x and y intercepts, if any.

a) $y=\dfrac{x^3+3x^2-10x}{x^2-25}$ b) $y=\dfrac{x^2-12x+20}{x^2+9x}$ c) $y=\dfrac{x^2+8}{x^2-7x-8}$

Alg 2 Chapter 9 Review **ANSWERS** Spring 2019

1. $\frac{3x(x+3)}{4(x+2)}$ $x \neq 0, \pm 2$ 2. $\frac{2}{x(x-1)}$

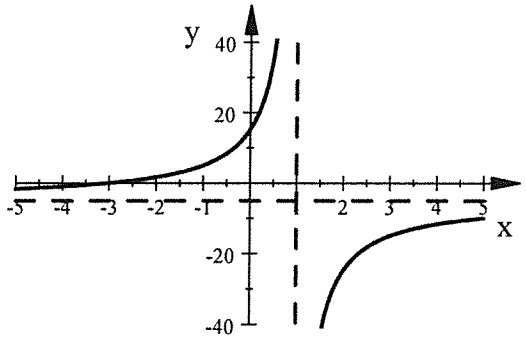
3. $\frac{4(x-8)}{2x+1}$ 4. $\frac{2x^2+13x}{(x+1)(x-1)(x+2)}$ 5. $\frac{29x+56}{6x(x+4)^2}$

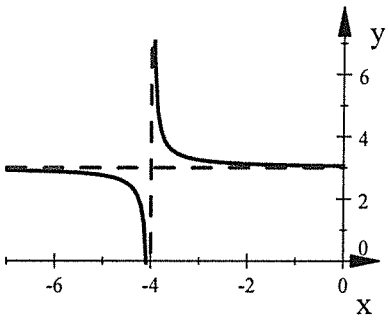
6. $\frac{6y^2+x^3y^2}{4x^3}$ 7. $\frac{7x-4}{4x-5}$ 8. $\frac{7y^2+3x^4y}{2x^4-x^2y^2}$ 9. $\frac{4x+8}{3x+10}$

10. $x = -13.5$ 11. $x = -1, 12$ 12. $x = 5$ 13. $x = 20$

14. a) $\frac{-3}{x+2} - 4$ b) $\frac{3}{x-3} + 1$

15. a) HA: $y = -5$ VA: $x = 1$ b) HA: $y = 3$ VA: $x = -4$





16. Holes: $x = -4, 0$ VA: $x = -7, 5$

17. a) HA: NONE b) HA: $y = \frac{8}{3}$ c) HA: $y = 0$

18. a) $x - int = 0, 2$ $y - int = 0$ b) $x - int = 2, 10$ No $y - int$ c) No $x - int$ $y - int = -1$