

Chapter 10 Test Form A

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Name _____

Date _____

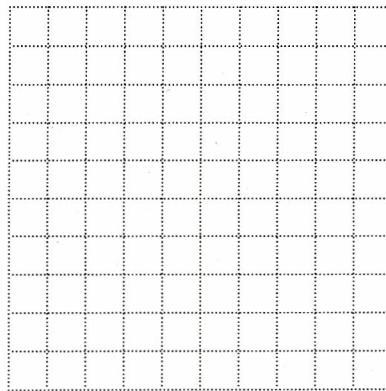
1. Identify all horizontal and vertical asymptotes of the graph of the function.

$$f(x) = \frac{x^2}{x^2 - 4}$$

1. _____

2. Sketch the graph of the function.

$$f(x) = \frac{x - 2}{x + 2}$$



2. Use graph at left.

3. x and y vary inversely. $x = 7$ when $y = -4$. Find an equation that relates the variables.

3. _____

4. z varies jointly with the product of x and y . $z = 2.4$ when $x = 3$ and $y = 2$. Find an equation that relates the variables.

4. _____

5. Simplify the expression.

$$\frac{x^2 - 2x - 3}{x^2 - 1}$$

5. _____

6. Multiply and simplify.

$$\frac{(x + 2)^2}{x - 5} \cdot \frac{x^2 - 2x}{x^2 - 4}$$

6. _____

7. Divide and simplify.

$$\frac{x^2 + 8x - 20}{5x^3 + 50x^2} \div \frac{x^2 + 9x}{x^2 + 7x - 18}$$

7. _____

8. Simplify.
- $\frac{(2x^2y^3)^2}{(x^3y^2)^3} \div \frac{(4x)^2y^3}{(xy)^4}$

8. _____

9. Find the least common multiple.

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

9. _____

10. Is
- $x = -3$
- a solution of

$$\frac{x + 4}{x + 3} = 2 + \frac{1}{x + 3}?$$

10. _____

11. Find all of the zeros of the function.

$$f(x) = \frac{x^2 - 3x - 40}{x^2 + x + 1}$$

11. _____

12. Solve the equation.

$$\frac{x}{30} - \frac{1}{5x} = \frac{1}{6}$$

12. _____

13. **Average Cost** Startup costs for producing a product are \$10,000. Thereafter, each item costs \$5 to produce. How many must be produced to bring the *average cost* per item down to \$10?

13. _____

14. Perform the operations and simplify.

$$\frac{3x + 4}{x^2 - 16} - \frac{2}{x - 4}$$

14. _____

15. Simplify the complex fraction.

$$\frac{\frac{5}{x + 2}}{3 - \frac{2}{x + 2}}$$

15. _____

16. Solve the equation.

$$\frac{\frac{x - 3}{2} + \frac{1}{6}}{\frac{1}{12} - \frac{x - 2}{3}} = -1$$

16. _____

Chapter 10 Test

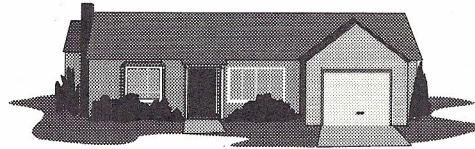
Form A

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Name _____

Home Mortgage The table gives the *monthly payment* on a home mortgage of \$100,000 for several times and interest rates.

	9%	10%	11%
15 years	1074.61	1136.60	1200.17
20 years	965.02	1032.19	1101.09
25 years	908.70	980.11	1053.72
30 years	877.57	952.32	1028.61



17. Use the table above to find the total interest payment on a \$100,000 home mortgage at 10% interest for 20 years. 17. _____

18. In Problem 17, how much money would have been saved if the mortgage had been for 15 years instead of 20? 18. _____

Installment Loan The monthly payment, M (in dollars), on an installment loan of principal, P (in dollars), at an annual rate, r , for t years is given by the formula

$$M = P \left[\frac{i}{1 - \left(\frac{1}{1+i} \right)^{12t}} \right]$$

where $i = \frac{1}{12} r$. Use the formula in Problem 19 and 20.

19. You borrow \$10,000 at an annual interest rate of 12% to be repaid in 5 years. Find the monthly payment. 19. _____

20. Find the total interest payment of the loan in Problem 19. 20. _____