

Chapter 9 Practice Test

Adv Algebra

Name _____ Period _____

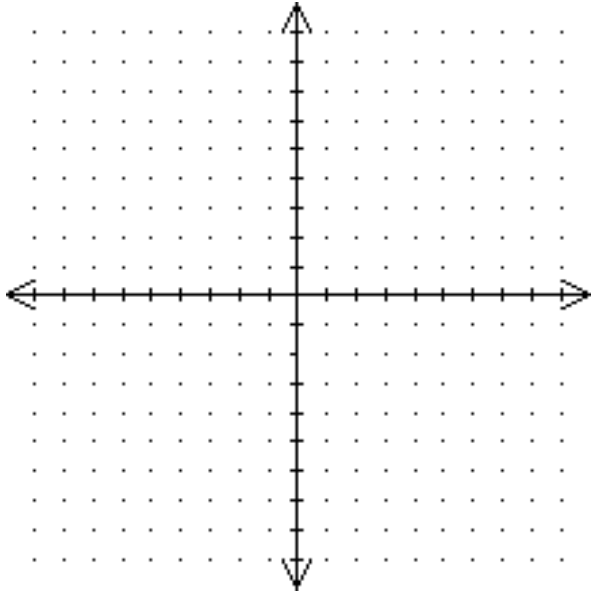
1. y varies directly with x , and $y = 3$ when $x = 12$.
 - a) Write the function that models this direct variation. 1a. _____
 - b) Find y when $x = 6$. 1b. _____

2. y varies inversely with x , and $y = 3$ when $x = 12$.
 - a) Write the function that models this inverse variation. 2a. _____
 - b) Find y when $x = 6$. 2b. _____

3. z varies directly with x and y , and $z = 24$ when $x = 3$ and $y = 4$.
 - a) Write the function that models this joint variation. 3a. _____
 - b) Find z when $x = 6$ and $y = 5$. 3b. _____

4. The mass m of an object varies directly with the kinetic energy E of the object and inversely with the square of the velocity v of the object. An object with a kinetic energy of 8 Joules and a velocity of 2 m/s has a mass of 4 kg.
 - a) Write a model for this variation. 4a. _____
 - b) What is the mass, in kg, of an object with a kinetic energy of 50 Joules and a velocity of 5 m/s? 4b. _____

5. Draw the graph and asymptotes of the function $y = \frac{3}{x+1} - 2$.



Domain: _____

Range: _____

Horizontal asymptote: _____

Vertical asymptote: _____

For questions 6 – 9, simplify completely and state any restrictions on the variable. **Show work or receive no credit.**

6. $\frac{3}{4x} + \frac{5}{12x}$

6. _____

Restrictions: _____

7. $\frac{x^2 + x - 3}{x^2 - 12x + 32} + \frac{3x}{x - 8}$

7. _____

Restrictions: _____

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

8. _____

Restrictions: _____

9. $\frac{x^2 + 8x + 16}{x + 2} \div \frac{x^2 + 6x + 8}{x^2 - 4}$

9. _____

Restrictions: _____

10. Simplify completely: $\frac{\frac{2}{x+2}}{\frac{1}{x+2} + \frac{2}{x}}$.

10. _____

Solve the following equations. Check each solution. **Show work or receive no credit.**

11. $\frac{2}{x+1} + \frac{x}{x-1} = \frac{2}{x^2-1}$

11. _____

12. $\frac{3x}{x+1} + \frac{6}{2x} = \frac{7}{x}$

12. _____

13. $\frac{x}{2x-6} = \frac{2}{x-4}$

13. _____

14. $\frac{4}{x} + \frac{5}{2} = -\frac{11}{x}$

14. _____

15. Given the table of values, answer the following questions.

x	y
1	3
2	1.5
3	1

15a. Is the relationship between x and y a direct or inverse variation? Justify your answer.

15a. _____

15b. Write the function that models the data.

15b. _____