

Name: _____

Period: _____

Algebra 2
Chapter 8: Rational Functions and Relations

Targets	Learning Targets	Got it	Ok	No way
T 8-1	I can simplify rational expressions with multiplication and division.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T 8-2	I can simplify rational expressions with addition and subtraction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T 8-3	I can solve rational expressions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Date	Lesson/Activity	Homework Assignment o = only do odd problems	Turned In?
T 8-1 12/5/13 12/6/13	8.1 Multiplying and Dividing Rational Expression	8.1 Pg. Pg. 534 #13-39o Difference of Squares WS	
T 8-2 12/9/13 12/10/13	8.2 Adding and Subtracting Rational Expressions	8.2 Pg. Pg. 541 #19-33o, 34, 46	
T8-1/2 12/11/13 12/12/13	T8-1 Review T8-2 Review	T8-1 & T8-2 Worksheet	
T 8-3 12/13/13 12/16/13	8.6 Solve Rational Equations and Inequalities	Rational Equations Worksheet	
T8-3	8.6 More Solving Rational Eq Chapter 8 review	Take home review	
	Chapter 8 Test	All homework must be turned in before test to be eligible for retakes	

Retake Problems for Ch. 5

T5-1	Pg 307 #17-23 odd, 29-39odd, 41-49odd, 54,55
T5-2	For all problems do both Long and synthetic division. Pg 315 #3,5,9,11,21-31odd
T5-3	T5-3 RETAKE WKST
T5-4	T5-4 RETAKE WKST
T5-5	T5-5 RETAKE WKST

Skills Practice

Differences of Squares

Factor each polynomial, if possible. If the polynomial cannot be factored, write *prime*.

1. $a^2 - 4$

2. $n^2 - 64$

3. $1 - 49d^2$

4. $-16 + p^2$

5. $k^2 + 25$

6. $36 - 100w^2$

7. $t^2 - 81u^2$

8. $4h^2 - 25g^2$

9. $64m^2 - 9y^2$

10. $4c^2 - 5d^2$

11. $-49r^2 + 4t^2$

12. $8x^2 - 72p^2$

13. $20q^2 - 5r^2$

14. $32a^2 - 50b^2$

Solve each equation by factoring. Check the solutions.

15. $16x^2 - 9 = 0$

16. $25p^2 - 16 = 0$

17. $36q^2 - 49 = 0$

18. $81 - 4b^2 = 0$

19. $16d^2 = 4$

20. $18a^2 = 8$

21. $n^2 - \frac{9}{25} = 0$

22. $k^2 - \frac{49}{64} = 0$

23. $\frac{1}{25}h^2 - 16 = 0$

24. $\frac{1}{16}y^2 = 81$

Skills Practice

Perfect Squares

Determine whether each trinomial is a perfect square trinomial. Write *yes* or *no*.
If so, factor it.

1. $m^2 - 6m + 9$

2. $r^2 + 4r + 4$

3. $g^2 - 14g + 49$

4. $2w^2 - 4w + 9$

5. $4d^2 - 4d + 1$

6. $9n^2 + 30n + 25$

Factor each polynomial, if possible. If the polynomial cannot be factored,
write *prime*.

7. $2x^2 - 72$

8. $6b^2 + 11b + 3$

9. $36t^2 - 24t + 4$

10. $4h^2 - 56$

11. $17a^2 - 24ab$

12. $q^2 - 14q + 36$

13. $y^2 + 24y + 144$

14. $6d^2 - 96$

Solve each equation. Check the solutions.

15. $x^2 - 18x + 81 = 0$

16. $4p^2 + 4p + 1 = 0$

17. $9g^2 - 12g + 4 = 0$

18. $y^2 - 16y + 64 = 81$

19. $4n^2 - 17 = 19$

20. $x^2 + 30x + 150 = -75$

21. $(k + 2)^2 = 16$

22. $(m - 4)^2 = 7$

T8-1 Review

Name _____

Multiply and Divide Rational Expressions

Date _____ Period _____

Simplify each expression.

1) $\frac{k+9}{(k-8)(k-7)} \cdot \frac{(k-7)(k+1)}{k+1}$

2) $\frac{p-2}{4p} \cdot \frac{3(p-10)}{3(p-2)}$

3) $\frac{x+8}{x-3} \div \frac{10(x-1)}{(x-1)(x-3)}$

4) $\frac{8n(n+10)}{10} \cdot \frac{n+7}{8n(n+7)}$

5) $\frac{9(m+7)}{(m+4)(m+7)} \div \frac{9}{8(m+4)}$

6) $\frac{6(r+7)}{2r} \cdot \frac{10}{10(r+7)}$

7) $\frac{8x^2}{x-4} \div \frac{8x^2}{16x^4}$

8) $\frac{n+5}{10} \div \frac{n+6}{3n+18}$

9) $(b+6) \cdot \frac{10b}{2b+12}$

10) $\frac{9v^2+15v}{8} \div \frac{9v^2+15v}{7}$

11) $\frac{x^2-15x+54}{x^2-14x+48} \div \frac{1}{x-8}$

12) $\frac{3x-9}{x-6} \div \frac{x^2-11x+24}{x-6}$

$$21) \frac{4n^3 - 14n^2}{14n^3 - 8n^2} \div \frac{8n - 28}{28 - 49n}$$

$$22) \frac{14b + 10}{7b + 5} \div \frac{3b^2 + 13b - 56}{48 - 18b}$$

$$23) \frac{(x+3)(x+1)}{(x+5)(x+2)} \div \frac{(x+3)}{(x+2)} \cdot \frac{(x+5)}{(x+1)}$$

$$24) (x^3 + 125) \div (x+5)$$

Review T8-2

Name _____

Adding + Subtracting Rational Expressions

Date _____ Period _____

Simplify each expression.

1) $\frac{u + 5v}{8v^2u^2} - \frac{u - 6v}{8v^2u^2}$

2) $\frac{5n}{30m} + \frac{2m + 4n}{30m}$

3) $\frac{a + 2b}{6a^3} - \frac{5a + 4b}{6a^3}$

4) $\frac{x + y}{18xy} - \frac{6x + y}{18xy}$

5) $\frac{4a - 5}{6a^2 + 30a} + \frac{a - 1}{6a^2 + 30a}$

6) $\frac{5x - 4}{9x^3 + 27x^2} - \frac{x + 6}{9x^3 + 27x^2}$

7) $\frac{b - 3}{12b + 18} + \frac{4b}{12b + 18}$

8) $\frac{n - 4}{n^2 - n - 20} + \frac{n + 1}{n^2 - n - 20}$

9) $\frac{7x}{2x} - \frac{x - 2}{20x + 16}$

10) $\frac{8}{7v - 6} + \frac{4}{3v^2}$

$$11) \frac{7v}{8} - \frac{8v-4}{5v-2}$$

$$12) \frac{4}{n+7} - \frac{7}{n-2}$$

$$13) \frac{7}{3n^2+24n} - \frac{7}{2n}$$

$$14) \frac{6}{v-2} - \frac{7}{2v+7}$$

$$15) \frac{6x}{3} + \frac{7}{15x+3}$$

$$16) \frac{5v}{v-3} + \frac{5}{v+6}$$

$$17) \frac{4x}{x^2+4x-5} - \frac{5}{4}$$

$$18) \frac{2}{x+3} - \frac{6x}{2x+1}$$

$$19) \frac{4x}{x+3} - \frac{4x}{x+6}$$

$$20) \frac{2x}{3x+3} - \frac{2}{x+5}$$

$$21) \frac{6}{x-2} + \frac{6}{x+1}$$

$$22) \frac{v-2}{3v^4-15v^3-18v^2} + 3v$$

Solving Rational Equations **T8-3 WS**

Solve each equation. Remember to check for extraneous solutions.

1) $\frac{1}{6k^2} = \frac{1}{3k^2} - \frac{1}{k}$

2) $\frac{1}{n^2} + \frac{1}{n} = \frac{1}{2n^2}$

3) $\frac{1}{6b^2} + \frac{1}{6b} = \frac{1}{b^2}$

4) $\frac{b+6}{4b^2} + \frac{3}{2b^2} = \frac{b+4}{2b^2}$

5) $\frac{1}{x} = \frac{6}{5x} + 1$

6) $\frac{1}{6x^2} = \frac{1}{2x} + \frac{7}{6x^2}$

7) $\frac{1}{v} + \frac{3v+12}{v^2-5v} = \frac{7v-56}{v^2-5v}$

8) $\frac{1}{m^2-m} + \frac{1}{m} = \frac{5}{m^2-m}$

9) $\frac{1}{n-8} - 1 = \frac{7}{n-8}$

10) $\frac{1}{r-2} + \frac{1}{r^2-7r+10} = \frac{6}{r-2}$

$$11) 1 = \frac{v+2}{v-4} + \frac{7v-42}{v-4}$$

$$12) \frac{r-4}{5r} = \frac{1}{5r} + 1$$

$$13) 1 + \frac{x^2 - 5x - 24}{3x} = \frac{x-6}{3x}$$

$$14) 1 = \frac{1}{x^2 + 2x} + \frac{x-1}{x}$$

$$15) \frac{n+5}{n+8} = 1 + \frac{6}{n+1}$$

$$16) \frac{r+5}{r^2 - 2r} - 1 = \frac{1}{r^2 - 2r}$$

$$17) \frac{1}{x^2 - 5x} = \frac{x+7}{x} - 1$$

$$18) \frac{a-2}{a+3} - 1 = \frac{3}{a+2}$$

$$19) \frac{p+5}{p^2 + p} = \frac{1}{p^2 + p} - \frac{p-6}{p+1}$$

$$20) \frac{5}{n^3 + 5n^2} = \frac{4}{n+5} + \frac{1}{n^2}$$

Perform the following operations and simplify the rational expressions.
Note when the equation is undefined.

1. $\frac{x(x-2)(x+1)}{x^2+3x-10}$

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

3. $\frac{x^2-7x-8}{3x^2-6x} \div \frac{x^2-4x-32}{6x^2-12x}$

4. $\frac{x^2-9}{\frac{x^2+5x+6}{\frac{x^2-7x+12}{x^2-2x-8}}}$

5. $\frac{6x^5}{x^2-16} \cdot \frac{x+4}{3x^3}$

6. $\frac{10x^2-50x}{4x^2-9} \cdot \frac{2x+3}{4x^2-20}$

$$1. \frac{20x^2}{3y} + \frac{7y}{36x^4y^2}$$

$$2. \frac{15x^2y}{42x^2y} - \frac{5xy^3}{6xy^2}$$

$$3. \frac{2x+3}{x-5} + \frac{x-2}{3x-15}$$

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

$$5. \frac{5c}{12x^2yz} + \frac{2c}{38xy^3}$$

$$6. \frac{7x^2}{5z} - \frac{4zy}{42x^3z}$$

Solve. Note when undefined.

1.
$$\frac{1}{5x^2 + 2x} - \frac{6}{5x + 2} = \frac{6}{5x^2 + 2x}$$

2.
$$\frac{3x + 15}{4x^2} = \frac{1}{x^2} - \frac{x - 3}{4x^2}$$

3.
$$\frac{x^2 - 4x - 12}{x^2 - 8x + 12} = \frac{6}{x - 5} + \frac{x - 3}{x - 5}$$

4.
$$\frac{4}{x^2 - 8x + 12} = \frac{x}{x - 2} + \frac{1}{x - 6}$$

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

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