RATIONAL EXPRESSIONS – EXERCISES

Reduce to lowest terms:

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

2. $\frac{5x+25}{x^2-25} = \frac{5}{x-5}$

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

4. $\frac{x-3}{x^2-6x+9} = \frac{1}{x-3}$

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

6. $\frac{2x^2+5x-3}{x^2-9} = \frac{2x-1}{x-3}$

Perform the indicated operations:

7. $\frac{x-3}{x^2-4} \cdot \frac{x+2}{x^2-6x+9} = \frac{1}{(x-2)(x-3)}$

8. $\frac{x+y}{x-1} \cdot \frac{x^2-2x+1}{x^2-y^2}$

9. $\frac{3x^2-2x-8}{2x^2+3x-2} \div \frac{x^2-4}{3x+4} = \frac{(3x+4)(3x+4)}{(2x-1)(x+2)(x+2)}$

10. $\frac{x^2+7x+12}{x-5} \div \frac{x^2+9x+18}{x^2-7x+10} = \frac{(x+4)(x-2)}{x+6}$

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

12. $\frac{1}{3x^2} + \frac{5}{2x^3}$

13. $\frac{1}{x-3} + \frac{3}{x^3-27}$

14. $\frac{x}{x^2-6x+9} + \frac{3}{2x^2-5x-3}$

15. $\frac{2}{x^2-x-12} - \frac{4}{x^2+6x+9}$

16. $\frac{x}{2x^2-3x-20} - \frac{1}{2x^2+7x+5}$

Name _____

AG2 Midterm Review: Dividing Polynomials

1. $(2x^2 + 5x - 3) \div (x - 3)$ $2x + 11 + \frac{30}{x-3}$	2. $\left(8x^4 + 16x^3 + 24x^2\right) \div 8x^2$ $x^2 + 4x + 3$
3. $(12x^3 + 2 + 11x + 20x^2) \div (2x + 1)$ $6x^2 + 7x + 2$	4. $\left(v^8 + 12v^7 + 2v^6\right) \div 4v^3$ $\frac{v^5}{4} + 3v^4 + \frac{v^3}{2}$
5. $\left(4n^3 - 13n - 6\right) \div \left(2n + 1\right)$ $2n^2 - n - 6$	6. $\left(18b^3 + 3b^2 + 3b\right) \div 6b^3$ $3 + \frac{1}{2b} + \frac{1}{2b^2}$
7. $(x^2 - 2x + 3) \div (x + 5)$ $x - 7 + \frac{38}{x+5}$	8. $\left(2n^3 + 8n^2 + 12n\right) \div 4n$ $\frac{n^2}{2} + 2n + 3$

Name_____

Rational Expression Worksheet #9: Adding/Subtracting

Add or subtract these rational expressions.

1. $\frac{9}{15x}+\frac{2}{15x} = \frac{11}{15x}$

2. $\frac{5x}{7}-\frac{2x}{7} = \frac{3x}{7}$

3. $\frac{4x}{2x+3}+\frac{7}{2x+3}$ $\frac{4x+7}{2x+3}$

4. $\frac{2}{5x+9}+\frac{x}{5x+9} = \frac{2+x}{5x+9}$

5. $\frac{5}{8a}-\frac{2}{8a} = \frac{3}{8a}$

6. $\frac{7}{x-5}-\frac{4}{x-5}$ $\frac{3}{x-5}$

7. $\frac{y}{y^2-9}+\frac{5}{y^2-9}$ $\frac{y+5}{(y-3)(y+3)}$

8. $\frac{8}{2x^2}+\frac{3}{2x^2} = \frac{11}{2x^3}$

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

10. $\frac{x-1}{3x+4}+\frac{2x+9}{3x+4} = \frac{3x+8}{3x+4}$

11. $\frac{5x}{3x^2}-\frac{4}{3x^2} = \frac{5x-4}{3x^2}$

12. $\frac{7x+4}{x^2+3x+2}-\frac{3x-2}{x^2+3x+2}$

$\frac{4x+6}{(x+2)(x+1)} = \frac{2(2x+3)}{(x+2)(x+1)}$

Algebra 1 **Unit 8 Factoring by Using the GCF Worksheet**

For each problem below, factor by finding the GCF.

1) $2a^4+8a$ $2a(a^3+4)$	2) $5x^3-10$
3) $8ab^2-12a^2b^3$ $4ab^2(2-3ab)$	4) $10c^3d^2-15cd^3$
5) $15f-20g^2$ $5(3f-4g^2)$	6) $3y^4+9y^2-15$
7) $10d^7+2d^5$ $2d^5(5d^2+1)$	8) $7w^5-35w^2$
9) $2x+2y$ $2(x+y)$	10) $-32y^2-24y$
11) $6x^2yz+2xy^2z-4xyz$ $2xyz(3x+y-2)$	12) $12a^4b^3c^2-4a^3bc^2+8a^2c-16ab$

Algebra 1 Name_____

Worksheet: Factoring Trinomials (a=1)

Date_____

Write each trinomial in factored form (as the product of two binomials).

1) $p^2 + 14p + 48$

$(p+8)(p+6)$

3) $p^2 + 14p + 40$

$(p+4)(p+10)$

5) $p^2 - 8p + 7$

$(p-1)(p-7)$

7) $b^2 - 8b + 15$

$(b-3)(b-5)$

9) $k^2 - 4k - 60$

$(K-10)(K+6)$

11) $p^2 - 2p - 15$

$(p-5)(p+3)$

Factor each completely. (Remember to pull out the GCF first.)

13) $3r^2 + 21r + 30$

$3(r+5)(r+2)$

15) $2r^2 - 16r + 30$

$2(r-5)(r-3)$

17) $3b^2 - 3b - 36$

$3(b-4)(b+3)$

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Name_____

Factoring Trinomials (a > 1)

Date_____ Period____

Factor each completely.

1) $3p^2 - 2p - 5$

$(3p-5)(p+1)$

3) $3n^2 - 8n + 4$

$(3n-2)(n-2)$

5) $2v^2 + 11v + 5$

$(2v+1)(v+5)$

7) $7a^2 + 53a + 28$

$(7a+4)(a+7)$