

Name _____

Date _____

Advanced Algebra

Unit 5 Polynomials: Assignment #15

I can reduce Fractions:

Remember: You can only cancel factors that are EXACTLY the same when you have more than 1 term in the fraction.

Extension: State the vertical asymptote state any holes

<p>1) $\frac{3x+12}{x+4}$</p> <p>$y = \frac{3(\cancel{x+4})}{(\cancel{x+4})}$</p> <p style="text-align: center;">(3)</p>	<p>2) $\frac{x-5}{8x-40}$</p> <p>$\frac{(\cancel{x-5})}{8(\cancel{x-5})}$</p> <p style="text-align: center;">(1/8)</p>	<p>3) $\frac{x^2-9}{x+3}$</p> <p>$\frac{(\cancel{x-3})(\cancel{x+3})}{(\cancel{x+3})}$</p> <p style="text-align: center;">(x-3)</p>
<p>4) $\frac{x^2-49}{3x-21}$</p> <p>$\frac{(\cancel{x-7})(\cancel{x+7})}{3(\cancel{x-7})}$</p> <p style="text-align: center;">(x+7)/3</p>	<p>5) $\frac{x^2+2x}{x^2-9x}$</p> <p>$\frac{x(\cancel{x+2})}{x(\cancel{x-9})}$</p> <p style="text-align: center;">(x+2)/(x-9)</p>	<p>6) $\frac{x^2+8x+15}{x^2+7x+10}$</p> <p>$\frac{(\cancel{x+5})(\cancel{x+3})}{(\cancel{x+5})(\cancel{x+2})}$</p> <p style="text-align: center;">(x+3)/(x+2)</p>
<p>7) $\frac{x^2+4x-12}{x^2-5x+6}$</p> <p>$\frac{(\cancel{x+6})(\cancel{x-2})}{(\cancel{x-3})(\cancel{x-2})}$</p> <p style="text-align: center;">(x+6)/(x-3)</p>	<p>8) $\frac{x^2+9x+20}{x^2-25}$</p> <p>$\frac{(\cancel{x+5})(\cancel{x+4})}{(\cancel{x-5})(\cancel{x+5})}$</p> <p style="text-align: center;">(x+4)/(x-5)</p>	<p>9) $\frac{5x-15}{x^2+5x-24}$</p> <p>$\frac{5(\cancel{x-3})}{(\cancel{x+8})(\cancel{x-3})}$</p> <p style="text-align: center;">5/(x+8)</p>

Multiply the following out to its expanded form. You can use special patterns if you recognize them.:

1) $(x-9)(x+9)$

$$x^2 - 81$$

2) $(x+2)(x-2)$

$$x^2 - 4$$

3) $(x+5)^2$

$$x^2 + 10x + 25$$

4) $(x-3)^2$

$$x^2 - 6x + 9$$

5) $(x-4)^3$

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

$$x^3 - 12x^2 + 48x - 64$$

6) $(x+6)^3$

$$x^3 + 3x^2(6) + 3x(6^2) + 6^3$$

$$x^3 + 18x^2 + 108x + 216$$

7) $(x+1)^3$

$$x^3 + 3x^2(1) + 3x(1^2) + 1^3$$

$$x^3 + 3x^2 + 3x + 1$$

8) $(3x+4)^2$

$$9x^2 + 24x + 16$$

9) $(2x-1)^2$

$$4x^2 - 4x + 1$$

10) $(3x+2y)^3$

$$(3x)^3 + 3(3x)^2(2y) + 3(3x)(2y)^2 + (2y)^3$$

$$27x^3 + 18x^2y + 36xy^2 + 8y^3$$