Semester 2 Exam Review

Algebra 2

1. Simplify the expressions.

$$\frac{x^{2}-2x-15}{x^{2}-4x-5}$$

1. Simplify the expressions.

$$\frac{12a^{6}b^{3}}{4a^{3}b^{5}}$$

1. Multiply the expressions.

$$\frac{2x^{2}+5x+2}{x-5} ∙ \frac{x^{2}-25}{2x+1}$$

1. Multiply the expressions.

$$\frac{x^{2}+x-12}{x-1}∙ \frac{2x-2}{x^{2}+9x+20}$$

1. Divide the expressions.

$$\frac{x^{3}-5x^{2}+2x-10}{3x-9} ÷ \frac{x^{2}+2}{x^{2}-3x}$$

1. Add the expressions.

$$\frac{4x}{x-1}+ \frac{x-5}{x-1}$$

1. Subtract the expressions.

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

1. Divide the expressions.

$$\frac{4a^{3}}{2b} ÷ \frac{6a^{5}}{3b^{4}}$$

1. Divide the polynomials.

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

1. Factor the polynomial.

$$x^{3}+216$$

1. Subtract the polynomials.

$$\left(8x^{4}- x^{3}\right)-(x^{4}+4x^{3}-4)$$

1. Multiply the polynomials.

$$(2x-7)(3x^{2}-5x+1)$$

1. Classify the polynomial.

$$-3x^{4}- 2x^{3}$$

1. Factor the polynomial.

$$8x^{ 3}- 4x^{2}-50x+25$$

1. Multiply the polynomials.

$$-3x^{3}y(4x^{2}-5x+2)$$

1. Divide the polynomials.

$$\frac{x^{4}+ 15x^{3}- 77x^{2}+ 13x-36}{x-4}$$

1. Add the polynomials.

$$(5x^{5}-x)(x^{5}+7x-2)$$

1. Find all rational zeros.

$$f\left(x\right)= x^{4}+ x^{3}+ 4x^{2}+6x-12$$

1. Solve the system of equations.

$$5x-y=5$$

$$5x-3y=15$$

1. Solve the system of equations.

$$-4x+4y= -8$$

$$x-4y= -7$$

1. Solve the system of equations.

$$5x+3y= -6$$

$$3x-2y=4$$

1. Solve the system of equations.

$$-x+2y =10$$

$$-3x+6y=11$$

1. Solve the system of equations.

$$x-3y-z= -9$$

$$-2x+y+2z=3$$

$$2x+y+3z=8$$

1. Solve the system of equations.

$$-5x+4y=6$$

$$3x-y=2$$

1. Solve the system of equations.

$$y= x^{2}-8$$

$$2y= x^{2}- 6x$$

1. Use the quadratic formula to solve the equation.

$$4x^{2}-x= -3$$

1. Find the axis of symmetry, vertex, and y-intercept.

$$f\left(x\right)= 2x^{2}-8x-10$$

1. Write the function in vertex form.

$$f\left(x\right)= 2x^{2}+12x+14$$

1. Write the function in vertex form.

$$f\left(x\right)= x^{2}+10x+16$$

1. Solve the equation using the quadratic formula.

$$4x^{2}+28x-32=0$$

1. Solve the equation using the quadratic formula.

$$x^{2}+10x= -14$$

Perfect Cube Factoring

$$a^{3}+ b^{3}$$

$$(a+b)(a^{2}-ab+ b^{2})$$

$$a^{3}- b^{3}$$

$$(a- b)(a^{2}+ab+ b^{2})$$

Perfect Square Factoring

$$a^{2}- b^{2}$$

$$(a-b)(a+b)$$

Quadratic Formula

$$x= \frac{-b \pm \sqrt{b^{2}-4ac}}{2a}$$