Algebra 1 Packet April 20th - May 18th

***Monday, April 20th:***

Go do Review Quiz 2 #1-5. It is another document on my website and in Schoology. Put answers in Schoology

***Tuesday, April 21st:***

Go do Review Quiz 2 #6-10. It is another document on my website and in Schoology. Put answers in Schoology

***Topic #13: Exponent Rules Wednesday April 22***

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| PRODUCT RULE | QUOTIENT RULE | POWER RULE | NEGATIVE EXPONENT RULE |
| $$x^{a}∙x^{b}=$$ | $$\frac{x^{a}}{x^{b}}=$$ | $$\left(x^{a}\right)^{b}=$$ | $$x^{-a}=$$ |
| **Simplify each expression.** |
| 1. $7m∙m^{2}∙8v^{5}$
 | 1. $\left(4x^{3}y^{5}\right)^{3}$
 | 1. $\frac{35k^{10}}{5k^{2}}$
 |
| 1. $\left(-2a^{6}bc^{3}\right)^{2}∙-5ab^{2}$
 | 1. $\frac{r^{16}s^{2}t^{3}}{r^{4}s^{2}t^{8}}$
 | 1. $\frac{\left(-3k^{6}\right)^{2}}{5k^{3}∙3k^{3}}$
 |
| 1. $\left(\frac{4m^{4}n^{2}}{6m^{5}n}\right)^{2}$
 | 1. $\left(-2y^{4}\right)∙\left(xy^{3}\right)^{2}-13x^{2}y^{10}$
 | 1. $\frac{-5p^{2}q^{8}}{20p^{-1}q^{2}}$
 |
| 1. $\frac{a^{12}b^{-3}}{\left(ab\right)^{-4}}$
 | 1. $\left(2v\right)^{-2}∙\left(6v^{-7}\right)^{3}$
 | 1. $\left(\frac{c^{-7}d}{3c^{-2}d^{5}}\right)^{4}$
 |

***Topic #14: Simplifying Polynomials Thursday April 23***

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| **Simplify each expression.**  |
| 1. $\left(n^{2}-3n+14\right)+\left(3n^{2}+n-25\right)$
 | 1. $\left(2x^{2}+3x-2\right)-\left(x^{2}-4x-1\right)$
 |
| 1. $\left(5-8k\right)-\left(8k-13+2k^{2}\right)$
 | 1. $\left(6+m^{3}+m-3m^{2}\right)+\left(7m^{3}+11-6m+m^{2}\right)$
 |
| 1. $3a^{2}b^{3}\left(2a^{2}-7ab+b^{2}\right)$
 | 1. $8p\left(p^{2}+7p-2\right)-(9p^{3}-2p^{2})$
 |
| 1. $\left(x-9\right)\left(x+7\right)$ ***Monday, April 27***
 | 1. $\left(w+8\right)\left(w-8\right)$
 |
| 1. $\left(v+1\right)\left(4v+3\right)$
 | 1. $\left(2k-5\right)\left(3k-4\right)$
 |
| 1. $\left(2a+5b\right)\left(a-3b\right)$
 | 1. $\left(2y-1\right)^{2}$
 |
| 1. $\left(x-4\right)\left(x^{2}+5x+3\right)$
 | 1. $(2c+1)(c^{2}-3c-11)$
 |

***Tuesday, April 28:***

**Review Quiz 3: It’s in the “Quizzes” Documents on my website and in Schoology.**

**Put answers in Schoology.**

***Topic #15: Factoring Polynomials Wednesday, April 29-May 5***

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| **Factor each polynomial.**  |
| GREATEST COMMON FACTOR (GCF) | 1. $21c-12$

***Wednesday, April 29*** | 1. $x^{6}y+8x^{2}y$
 | 1. $75a^{2}b^{3}c-30ab^{2}$
 |
| DIFFERENCE OF SQUARES $(a^{2}-b^{2})$ | 1. $w^{2}-64$
 | 1. $9k^{2}-1$
 | 1. $4m^{2}-81n^{2}$
 |
| TRINOMIAL $x^{2}+bx+c$ | 1. $p^{2}-13p+30$

***Thursday, April 30*** | 1. $y^{2}-3y-40$
 | 1. $a^{2}+12a+36$
 |
| TRINOMIAL $ax^{2}+bx+c$ | 1. $3x^{2}+10x+3$
 | 1. $12c^{2}+5c-2$
 | 1. $4v^{2}-16v+7$
 |
| 1. $12x^{2}-12$

***Monday, May 4*** | 1. $n^{3}-4n^{2}-60n$
 | 1. $8m^{2}-21$
 |
| 1. $5w^{2}-15w-20$
 | 1. $8v-98v^{3}$

***Tuesday, May 5*** | 1. $4x^{2}-10x+4$
 |
| 1. $27ab-75ab^{3}$
 | 1. $12y^{2}-16y-16$
 | 1. $3k^{2}-6k+3$
 |

***Topic #16: Graphing Quadratic Equations Wednesday, May 6***

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| Macintosh HD:Users:reneice.glasper:Desktop:Screen Shot 2020-04-09 at 1.49.08 PM.pngA quadratic equation creates a U-shaped curve called a PARABOLA. | Standard Form: |  |
| Axis of Symmetry: $x=\frac{-b}{2a}$ |
| Vertex Form: |  |
| Axis of Symmetry: *x = h*; Vertex: *(h, k)* |
|
| **Graph each equation using a table of values. Identify all key characteristics.**  |
| 1. $y=x^{2}-6x+8$

|  |  |
| --- | --- |
| $$x$$ | $$y$$ |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

 | Domain: |
| Range: |
| Axis of Symmetry: |
| Vertex: |
| x-intercepts (zeros): |
| y-intercept: |
| 1. $y=-x^{2}+4x-5$

|  |  |
| --- | --- |
| $$x$$ | $$y$$ |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

 | Domain: |
| Range: |
| Axis of Symmetry: |
| Vertex: |
| x-intercepts (zeros): |
| y-intercept: |
| 1. $y=3x^{2}-3$

|  |  |
| --- | --- |
| $$x$$ | $$y$$ |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

 | Domain: |
| Range: |
| Axis of Symmetry: |
| Vertex: |
| x-intercepts (zeros): |
| y-intercept: |
| 1. $y=-(x+4)^{2}+9$

|  |  |
| --- | --- |
| $$x$$ | $$y$$ |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

 | Domain: |
| Range: |
| Axis of Symmetry: |
| Vertex: |
| x-intercepts (zeros): |
| y-intercept: |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. $y=2(x-1)^{2}$

|  |  |
| --- | --- |
| $$x$$ | $$y$$ |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

 | Domain: |
| Range: |
| Axis of Symmetry: |
| Vertex: |
| x-intercepts (zeros): |
| y-intercept: |

***Topic #17: Transformations Thursday, April 7th***

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| **Recall that vertex form describes transformations from the quadratic parent function,** $y=x^{2}$**.**  |
| Given $y=a(x-h)^{2}+k$: |
| Translations (Shifts) | Reflections | Dilations (compress/stretch) |
| $$+h$$ | Shifts left | $$+k$$ | Shifts up | If $a$ is negative, the graph reflects over the x-axis. | $$\left|a\right|>1$$ | Creates a vertical stretch |
| $$-h$$ | Shifts right | $$-k$$ | Shifts down | $$\left|a\right|<1$$ | Creates a vertical compression |
| **Given each equation, describe the transformations from the parent function** $y=x^{2}$**.**  |
| 1. $y=\left(x+5\right)^{2}+3$
 | 1. $y=-2\left(x-4\right)^{2}$
 | 1. $y=\frac{1}{3}(x+1)^{2}-4$
 |
| **Transformations from the parent function** $y=x^{2}$**. Write an equation to represent the new function.** |
| 1. Translated 3 units right and 2 units up
 | 1. Vertically stretched by a factor of 4, then 5 units down
 | 1. Reflected over the x-axis, then translated 7 units left and 1 unit up.
 |

***Topic #18: Solving Quadratic Equations Monday, April 11-14 (Look at Calendar)***

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| * The solutions to a quadratic equation are the points at which the parabola intersects the x-axis.
* Solutions are also referred to as roots, zeros, or x-intercepts.
* A quadratic equation can have two solutions, one solution, or no real solutions.
 | Methods to Solve a Quadratic Equation |
| * Graphing
* Factoring
* The Quadratic Formula
 |
| **Solve each equation. Round to the nearest hundredth when necessary.** |
| 1. $x^{2}+8x=0$ Monday
 | 1. $4x^{2}=10x$ Monday
 |
| 1. $2x^{2}-72=0$ Wedneday
 | 1. $4x^{2}-43=6$ Don’t Do
 |
| 1. $\frac{1}{2}x^{2}-30=10$ Don’t Do
 | 1. $9-x^{2}=17$ Don’t Do
 |
| 1. $x^{2}+5x=6$ Tuesday
 | 1. $x^{2}=18x-81$ Tuesday
 |
| 1. $3x^{2}=30-9x$ Wednesday
 | 1. $6x^{2}-x-2=0$ Tuesday
 |
| 1. $2x^{2}+8x-3=0$ Thursday
 | 1. $4x^{2}-10x=5$ Thursday
 |

***Tuesday, May 12th***

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| 1. The dimensions of a rectangle can be represented by the expression $(x+7)$ and $(x-3)$. If the area of the rectangle is 75 square feet, find the value of x.

Hint: set up an equation. Area of a rectangle is A=LxWSet up like this: Multiply the two binomials and set it equal to 75.Solve for x by setting each binomial = to zeroThe answer can only be the positive one because you can’t have a negative measurement.  |
| 1. ~~The stress distribution on a structure is given by~~ $s=2x^{2}+4x-30$ ~~where~~ $s$ ~~is stress in pounds per square inch and~~ $x$ ~~is the distance in feet from a reference point. At what distance is the stress equal to 0 pounds per square inch?~~
 |
| 1. ~~A toy rocket is launched from a platform that is 48 feet high. The rocket’s height above the ground is modeled by the equation~~ $h=-16t^{2}+32t+48$~~. What is the rocket’s height at 2 seconds?~~
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***Monday, May 18th***

**Review Quiz 4: It’s in the “Quizzes” Documents on my website and in Schoology.**

**Put answers in Schoology.**