|  |
| --- |
| April/May 2016: Function Unit |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sun | Mon. | Tue. | Wed./Thurs. | Fri. | Sat. |
| **10** | **11** | **12** | **13 14** | **15** | **16** |
|  | Solving Linear Inequalities **Linear/Abs Value Weekly Due 4/25** **HWK #1: Solving Linear**  | Writing Equations of Lines  | **QUIZ Solving Linear Equations/ Inequalities** Writing Equations of Parallel/Perpendicular Lines**HWK #2: Writing Equations of Lines/Graphing** | NO SCHOOL!!!! |  |
| **17** | **18** | **19** | **20 21** | **22** | **23** |
|  | Graphing Linear Equations and Inequalities  | Systems of Linear Equations **HWK #3 Systems of Linear Equations** | **Equations of Lines Quiz-Writing and Graphing** Solving Absolute Values/Inequalities **HWK #4: Absolute Value** | **Absolute Values Solving Quiz**Graphing Absolute Value & InequalitiesReview |  |
| **24** | **25** | **26** | **27 28** | **29** | **30** |
|  | **QUIZ Absolute Values****Linear/Abs Value Weekly DUE!**Solving Radical Functions**Function Weekly** **Due 5/9****HWK #5: Radicals-Solving and Graphing** | Graphing Radical Functions  | **QUIZ Radicals**Review of Linear, Absolute Value and Radicals; Piecewise Functions  | Function NotationAdding/Subtracting Functions**HWK #6: Functions-Operations, Composition, Inverse** |  |
| **1** | **2** | **3** | **4 5** | **6** | **7** |
|  | Multiplying Functions Composition of Functions | Composition of Functions Review | Inverse of Functions  | **QUIZ Functions**Review for Function Unit Exam or Final Exam |  |
| **8** | **9** | **10** | **11**  | **12** | **13** | **14** |
|  | **ALL HOMEWORK IS DUE!**Quiz Retakes!Review for Function Unit Exam or Final Exam  | Seniors: FINAL EXAM Juniors: UNIT EXAM  | Seniors: FINAL EXAM Juniors: UNIT EXAM | Review for Junior Finals | Review for Junior Finals |  |
| **15** | **16** | **17** | **18** | **19** | **20** | **21** |
|  | Review for Junior Finals | Junior Finals Hours 2, 4, & 6 | Junior Finals; 1 & 3 | Junior Finals; 5 & 7 | No School!! Summer Vacation Begins ☺ |  |

**Algebra 3/Trig: Dieckmann Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Function Notes**

**Linear**

**Linear Inequalities:**

|  |
| --- |
| **Inequality Symbols & What they mean** |
|  |  |
|
|  |  |
|

|  |
| --- |
| Solve & Graph the solution set on a number line |
| https://banderson02.files.wordpress.com/2014/09/blank-number-line.png1) $5w+3>4w+9$ |
|  |
|  |
|  |
| https://banderson02.files.wordpress.com/2014/09/blank-number-line.png2) $-3\left(5-4r\right)\leq -9$ |
|  |
|  |
|  |
|  |
| https://banderson02.files.wordpress.com/2014/09/blank-number-line.png3) $-5(y-7)\geq 25$ |
|  |
|  |
|  |
|  |
| https://banderson02.files.wordpress.com/2014/09/blank-number-line.png4) $-7x-8\leq 2-2x$ |
|  |
|  |
|  |
|  |
| Solve the Inequalities, graph the solution set, and write it in interval notation |
| 1) $8<3y-7\leq 23$ 2) $k+6<-4 or 3k\geq 15$ |
|  |
|  |
|  |
|  |
| https://banderson02.files.wordpress.com/2014/09/blank-number-line.pnghttps://banderson02.files.wordpress.com/2014/09/blank-number-line.png |
| 3) $-5\geq 3z-2>-14$ 4) $g-6>-11 or 2g+4<-15$ |
|  |
|  |
|  |
|  |
| https://banderson02.files.wordpress.com/2014/09/blank-number-line.pnghttps://banderson02.files.wordpress.com/2014/09/blank-number-line.png |
|  |

**Writing Equations of Lines:**

|  |
| --- |
| **Slope-Intercept Form: Point-Slope Form:** |
|  |
| * m is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ m is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |
| * b is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $x\_{1} $is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |
|  $y\_{1} $is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

Write the equation of the line given the situations

1) (2, 3) and (4, 4) 2) (-4, 5) and (4, 3).

3) (6, -5) and (10, -5) 4) Slope of $\frac{-3}{5}$ and passes through (5, -2)

5) Slope $\frac{1}{2}$ and passes through (2, 3)

**Write the equation of the line that is perpendicular and parallel to:**

6) Slope of $-3$ and passes through (-2, -1) 7) Slope of $-3$ and passes through (-2, -1)

8)$2x-5y=8$, point (2, 7) 9)$-x-\frac{1}{2}y=4$, point (-2,-1)

**Graphing Linear Functions and Inequalities:**

**Graph Functions in Standard Form**

**1)** Graph: -2x + y – 4 = 0. 2) 3x – y + 6 = 0



3) $y>-3x-2$ 4) $x+4y\geq 2$





**Systems of Linear Equations:**

What are the two methods of solving systems?

1) $\left\{\begin{array}{c}4x-3y=-22\\2x+3y=16\end{array}\right.$ 2) $\left\{\begin{array}{c}6x-5y=-8\\4x-5y=-12\end{array}\right.$ 3) $\left\{\begin{array}{c}5x-3y=23\\y=-2x+7\end{array}\right.$

4) Levi has a job offer in which he will receive $800 per month plus a commission of 2% of the total price of the cars he sells. At his current job he receives $1200 per month plus a commission of 1.5% of his total sales. How much must he sell per month to make the new job a better deal?

5) A youth group went on a trip to an amusement park, travelling in two vans. In the first van, there were 2 adults and 5 children and it cost a total of $77 to enter the park. In the second van, there were 2 adults and 7 children and it cost $95. Find the adult price and the student price of admission.

**Absolute Value**

**Solving Absolute Value Equations and Inequalities:**

Evaluate the following:

1) $8.4-\left|2n+5\right|$ if n = -7.5 2) $\left|4x+3\right|-3.5$ if x = -2

Solve the following:

1) $\left|3x-2\right|+8=1$ 2) $\left|x+10\right|=4x-8$ 3) $8x=2\left|6x-2\right|$

4) $-3\left|3t-2\right|-12=-6$ 5) $2\left|x+1\right|-x=3x-4$

**Solve and graph the solutions:**

7)$\left|6y-5\right|\geq 13$ 8) $\left|4x-7\right|>13$ 9) $\left|5z+2\right|<17$

**Graphing Absolute Value Equations:**

**1)** $y+2=\left|x+2\right| $ 2) $-y+3=2\left|x-2\right| $



Domain: Domain:

Range: Range:

Transformations Transformations:

Vertex: Vertex:

3) $-2+y\leq -\left|x-1\right|-2 $ 4) $-3\left|x-1\right|+2\geq 2+y $



Domain: Range: Domain: Range:

Transformations: Transformations:

Vertex: Vertex:

**Radical**

**Solving Radical Equations:**

1) $2+\sqrt{x+5}=3$ 2) $\sqrt{5x+14}=x$ 3) $\sqrt{3x+5}=\sqrt{x+1}$

4)  5) ****

**Graphing Radical Functions:**

1) $f\left(x\right)=-2\sqrt{x+1}+3$ 2) $f\left(x\right)=\sqrt{x-2}+2$



Domain: Domain:

Range: Range:

Transformations: Transformations:

**Function Notation**

|  |
| --- |
| Function Notation:  |

**Given the following graphs below find the indicated information.**

1. a) Is $f (1) $positive or negative?

b) Is the function even or odd?

c) X-Int: Y-Int:

d) How often does the line x = 1 intersect the graph?

How often does the line y = 2 intersect the graph?

2. a) Is $f (1) $positive or negative?

b) Is the function even or odd?

c) X-Int: Y-Int:

d) How often does the line x = 1 intersect the graph?

How often does the line y = 2 intersect the graph?

**Operations with Functions:**

Given the following: $f\left(x\right)=-4x+1, g\left(x\right)=-x^{2}+x-4, h\left(x\right)=-2\left|x-4\right|+2$

|  |  |  |
| --- | --- | --- |
| A. $h\left(4\right)=$ | B. $g\left(-4\right)+h\left(1\right)=$ | C. $f\left(3\right)∙g\left(1\right)=$ |
| D. $g\left(6\right)-f\left(-1\right)=$ | E. $f\left(x+2\right)$ | F. $g\left(-x\right)=$ |

1) Given $f(x) =\sqrt{x-2}+3$ and $g(x) = 2x^{2} – x – 1$, find (*f* + *g*)(*x*).

2) Given $f(x) = 3x+2$ and $g(x) = 2x – 1$, find (*f* – *g*)(*x*).

3) Given $f(x) = 2\left|x+2\right|-4$ and$ g(x) = 8$, find (*f* + *g*) (*x*).

4) Given *f*(*x*) = 3*x*2 – 2*x* + 1 and *g*(*x*) = *x* – 4, find (*f* ● *g*)(*x*).

**Composition of Functions:**

1) Find [*f* ○ *g*] (*x*) for $f(x) = 3x-10$ and$ g(x) = 2x – 1$.

2) Find [*g* ○ *f*] (*x*) for $f(x) = \sqrt{x+3}-17 $and$ g(x) = 2x – 1$.

3) Find f (g(*x*)) for $f(x) = -3\left|x+12\right|-10$ and$ g(x) = x + 5$.

**Inverse Functions:**

Step-by-step:

* Step 1 Replace *f*(*x*) with *y* in the original equation.
* Step 2 Interchange *x* and *y*.
* Step 3 Solve for *y*.
* Step 4 Replace *y* with *f* –1(*x*).

1) Find the inverse of $f\left(x\right)=-\frac{1}{2}x+1$ 2) Find the inverse of $f\left(x\right)=\frac{1}{3}x+6$

3) Find the inverse of $f\left(x\right)=x^{2}+6$ 4) Find the inverse of $f\left(x\right)=6(2x+4)$