Name Date

1st SW

Review

First Six Weeks Review

1. Simplify the expression: 4 - 5(-4x + 3) + x

Things to think about: “**simplify**” means

* No “=” equal sign, no solving
* Distribute
* Combine Like Terms
* Leave “x” in your answer

Solve the following equations:

2. 8x – 2 = -9 + 7x

Things to think about: “**solve**” means

* Distribute & Combine Like Terms
* Put Variable Terms on one side
* Put constant terms on the other side
* Solve to find what x is equal to
* (if the variable cancels out, determine if you have NO SOLUTION or INFINITELY MANY SOLUTIONS)

3. 5x + 34 = -2(1 - 7x)

4. Find x if the perimeter is 14.

Things to think about: “**perimeter**” means

* ADD up all the sides
* So set up your equation, then solve

 2x x + 4

 x - 2

5. Solve & graph the inequality -4x – 6x > -20

Things to think about: solving “**inequalities**”

* Solve like an equation
* if you multiply or divide by a negative, flip the inequality sign
* **<** means LESS THAN

Things to think about: graphing “**inequalities**”

* < and > have open circles
* < and > have closed circles
* **<** means LESS THAN



6. The sum of a number *x* and 2 is at most 5.

Things to think about: “**inequality**”

* At most 5 means the MOST you can have is 5, you can’t have more than 5.
* At least 5 means the LEAST you can have is 5 you can’t have less thaan 5
* No more than 5 means you cannot have more than 5, but you can have 5

 Write and solve the inequality.

7. Solve for y. 8x + 4y = 12

Things to think about: “**solving with two variables**” (literal equations)

* Box the variable you are solving for
* Cancel beside the box – if they are not like terms, do not combine them!
* Cancel the number in the box – be sure to divide everywhere!!
* Your answer will be an equation

Things to think about: “**functions**”

* Each input has exactly one output.
* (so x cannot repeat)

8. Is the following relation a function?

 {(3, 5), (7, 10), (−1, 0), (−5, 5), (0, 1), (2, 5)}

Things to think about: “**domain**”

* Domain is all the x values
* If the function is discrete (countable), you can list the domain, use { }
* If you are given plotted points, first write the ordered pairs.

9. What is the domain of the following functions?

 a. {(2, 5), (3, 10), (3.5, 12), (5, 25)}



Things to think about: “**domain**”

* Domain is all the x values
* If the domain is continuous (measured), use inequalities (like 2 < x < 10 or x > 4)
* Domain goes from LEFT to RIGHT
* Open circles: < or >
* Closed circles: < or >

 b.

10. Find the range of the following functions:

Things to think about: “**range**”

* Range is all the y values
* If the function is discrete, you can list the range, use { }
* If the range is continuous, use inequalities (like 2 < y < 10 or y > 4)
* Range goes from BOTTOM to TOP
* Open circles: < or >
* Closed circles: < or >
* If you are given plotted points, first write the ordered pairs.

a.



b.

11. Which table represents a linear function?

Things to think about: “**linear**”

* The elements in the domain must have a constant rate of change
* The elements in the range must have a constant rate of change
* So all the x’s must “count by the same number” and all the y’s must “count by the same number”
* If it is not linear, it is NONLINEAR.

|  |  |
| --- | --- |
| **x** | **y** |
| 1 | 4 |
| 2 | 7 |
| 3 | 10 |
| 4 | 13 |

.

|  |  |
| --- | --- |
| **x** | **y** |
| 1 | 4 |
| 2 | 6 |
| 3 | 8 |
| 4 | 12 |

Things to think about: “**function notation**”

* To write in function notation, replace “y” with “f(x)”

12. Write the equation, y = -3x + 10 in

 function notation.

Things to think about: “**function notation**”

* To evaluate in function notation, the number in the parenthesis( ) is x.
* Plug x into the equation and solve.

13. If f(x) = -3x + 5,

 find the following value: f(-2) =

14. Use the graph to find the value of f(-2).

Things to think about: “**function notation**”

* To evaluate in function notation using a graph, the number inside the parenthesis ( ) is x.
* Use the graph t find the corresponding y-value for each x-value.

15. Find the slope and state what is represents.

Things to think about: “**slope**”

* Slope is the tilt/slant of a line
* It is also called the rate of change.
* *m* = $\frac{rise}{run}= \frac{change in y}{change in x}=\frac{∆y}{∆x}$
* $\frac{miles}{gallons} $ Top unit depends on the bottom unit (Ex.: miles depend on gallons, also read: miles PER gallon)
* $\frac{y\_{2}-y\_{1}}{x\_{2}-x\_{1}}$ for 2 points ($x\_{1},y\_{1}) and (x\_{2}, y\_{2})$
* It is m, in the equation y = mx + b
* To say what is “REPRESENTS”: **the “y” per “x”**
* Slope is only for LINEAR functions
* When using STAT, use STAT, calc 4. (slope is the “a” value)

a. b.

16. $2x+y=2 $ a. Identify the slope:

Things to think about: “**y-intercept**”

* It is sometimes called the constant
* It is the starting amount or initial amount
* It is wherethe graph crosses the y-axis
* The x-value is 0: (0, b)
* It is b in the equation: y = mx + b

 b Identify the *y*-intercept:

 c. Graph the equation

Things to think about: “**graphing linear functions**”

* First: plot “b” on the y-axis

(b is the y-intercept, the constant)

* Use m to plot second point. From your first point, do rise/run with your m (slope) value.
* Draw the line that goes through the two points

17. Write the linear equations.

a. rate of change is 7,

 y-intercept is -2



b.

Things to think about: “**writing linear functions**”

* Identify m (slope) and b (y-intercept: (0, #))
* Substitute the values into : y = mx + b



c.

Make sure you understand everything on this review. Attend tutorials with your teacher or in room D105 if you need help. Do your best and end the six weeks strong!